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GEELONG NATURALIST

JOURNAL OF THE GEELONG FIELD NATURALISTS' CLUB

Hon Editor,
Margaret Cameron,
4 Connor Street,
East Geelong, 3219

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Geelong Field Naturalists Club,
P.O. Box 1047,
Geelong, 3220

Editorial

If I went to Point Henry (about two miles from my home) and saw a Common Noddy, I probably wouldn't believe my own eyes. The first Victorian discovery of this tropical bird is noted in this issue: it was found at Point Henry by a systematic beach walker who had come all the way from the Dandenongs! There are still plenty of discoveries to be made close to home. Mr. Wegener's specimen and photographs give confirming evidence of his record; otherwise bird observers (and the recorders of rarities of other forms of life) need careful detailed description, made on the spot before referring to any textbooks, of every feature of the animal's appearance and behaviour.

Just as important as descriptions of rarities, however, is the recording of more common phenomena, as it all builds up our store of knowledge. The beautiful photograph of the Mother Spleenwort, illustrating so clearly the reason for its name, shows detail it is easy to overlook. It is pleasing that in this issue, there is a range of subject matter, representative of the wide-ranging interests of the Club.

ERRATA Vo. 18 no. 4 FEBRUARY, 1982

P. 114 paragraph 2, line 2. The Small Ant Blue Butterfly belongs to the lycaenidae family.

P. 115 references Wheeler, J.R., ed. *Ocean Grove Nature Reserve Information Booklet*, 1978.

(Apologies to Craig Morley, the author of the article, and to Jack Wheeler.)

- 6 MAY 1982
OF VICTORIA

Common Noddy beachwashed at Point Henry

Andrew Wegener

For many years I have been "beachcombing" – walking along beaches looking for interesting natural history specimens. At 6 a.m. on July 19, 1981 preparations were completed for another such trip, this time to the Point Henry area, Geelong. Accompanying me on the trip were my son Scott, and two newcomers to this type of beachcombing, Stephen Nudd and Cameron McInnes.

The aim of the exercise is to record and collect any specimens which can be used in my work of educating school-age children and the general public about our Australian wildlife. (I have a Fisheries and Wildlife scientific permit which allows me to collect and use specimens for educational purposes.)

On this occasion, very few specimens were recorded in the first two and a half hours of walking, but just before midday I spotted the oil-stained feathers of a bird protruding from some seaweed. After prodding it with my foot, I thought "just another gull", but, being a compulsive collector, I picked it up. I realised it wasn't a gull, and placed it in a collecting bag for later identification.

Another two hours of walking followed, and then we headed back home to the Dandenongs. During the day we had recorded the following species:

2 Pink-eared Duck	*Malacorhyncus membranaceus*
2 Eurasian Coot	*Fulica atra*
2 Banded Stilt	*Cladorhynchus leucocephalus*
3 Silver Gull	*Larus novaehollandiae*

and one badly-oiled, semi-decomposed seabird.

When sorting the day's finds at home that evening, I realised that this seabird was of a species with which I was totally unfamiliar. Not being an expert in ornithology, I put it to one side until I could consult with my friend Mr. Nicholas Day, a talented wildlife artist who is an authority on birds. After detailed study of the bird he identified it as a Common Noddy *(Anous stolidus)*, but advised me to verify this with the National Museum, as he recognized that this species would not normally be expected to be found in Victoria.

Before going to the Museum I filled in an Unusual Sighting Report for the Bird Observers Club. As a result of receiving this report, Mr. Rex Buckingham also advised me to take the bird to Mr. McEvey at the Museum, to verify the record.

At the Museum, the identification was confirmed. The bird was the first record of a Common Noddy in Victoria, and the specimen has been retained by the Museum.

After many years of beach walking, this is my rarest find. Other memorable discoveries on Victorian beaches have been Blue Petrels *(Halobaena caerula)*, Kerguelen Petrel *(Pterodroma brevirostris)*, Southern Fulmars *(Thalassoica glacialoides)*, Yellow-nosed Albatross *(Diomedea chlororhynchus)*, Common Dolphin *(Delphinus delphis)* and Leathery Turtle *(Dermochelys coriacea)*. I would be pleased to hear from other beachcombers about their beach walking activities.

My thanks go to Nicholas Day for his patience and expertise in helping to identify the specimen, and to the staff of the National Museum.

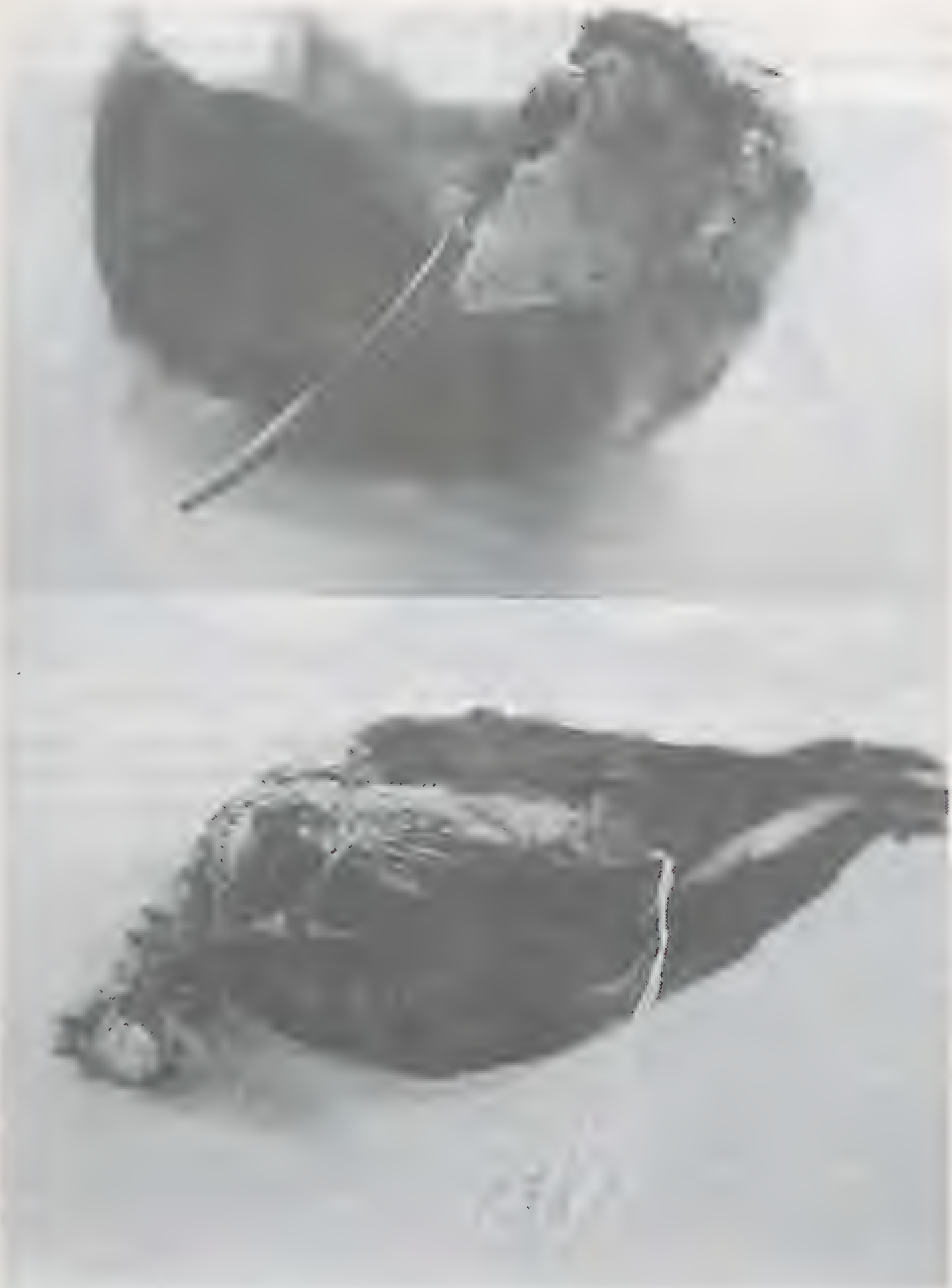
A. Wegener, c/- Australian Wildlife Lectures, P.O. Box 105, The Basin, 3154.

Editor's note:

The Common Noddy is a smallish tern (380-405mm). It has smoky-brown plumage with dark brown flight-feathers, and a dark wedge-shaped tail, often notched at the tip. The bill is long, pointed, and fairly robust. On the face, there is a well-defined black mark between eye and bill, cut off sharply by the edge of the white forehead. The cap shades from white forehead to grey crown to brown nape. (The most similar species, the Black or White-capped Noddy *(Anous minutus)* is the darkest Noddy, uniformly blackish with a forked tail. Its bill is longer and more slender than that of the Common Noddy. The sides of its face are blackish up to the level of the eye, cut off sharply by the white cap before and behind the eye.)

In Australia, the Common Noddy breeds on the Abrolhos and other islands in Western Australia, Ashmore Reefs in the Timor Sea, Bramble Cay in Torres Strait, offshore cays near Cairns including Michaelmas Cay, Raine Island, Lady Elliott Island, islands in the Coral Sea and Lord Howe island, as well as elsewhere in the tropical Indian, Pacific, and Atlantic Oceans.

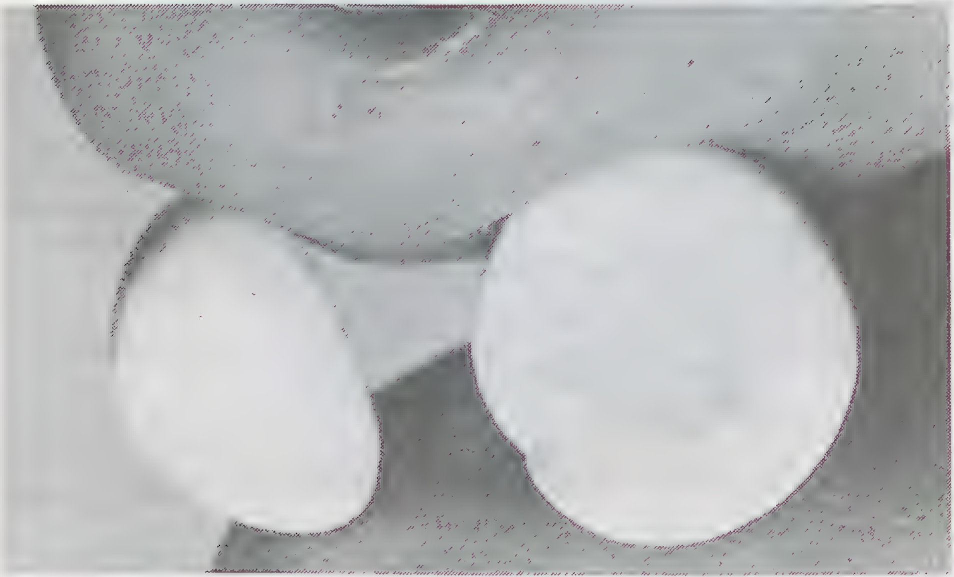
After breeding, they disperse, reaching Kiama in New South Wales, and Cape Naturaliste in Western Australia. This is the first Victorian record.



Common Noddy *(Anous stolidus)* beachwashed at Point Henry, 9th February, 1982.

Gastroliths

Trevor Pescott



Gastroliths or stomach stones from a Yabbie, Ararat Reservoir.

The Yabbie *(Cherax destructor)* is a crustacean distributed widely throughout inland south-eastern Australia where it occurs in natural wetlands as well as in farm dams, reservoirs, irrigation channels and other earth-lined water-ways.

When present in large numbers, they can cause considerable damage by burrowing into irrigation banks and earth retaining walls, their tunnels allowing seepage to occur and ultimately undermining the water storage structures.

Yabbies can withstand temporary drying out of their habitat — they dig their burrows down to the water-table which may be a metre or more below ground level, enlarge a bowl at the end, pack mud up to seal the burrow above, and wait for the weather to change.

Occasionally, though, Yabbies are caught without adequate protection and on a recent (March 1982) visit to the Ararat Reservoir in the Mt. Cole forest, Club members found hundreds dead on the ground that had been exposed when the water level had fallen.

Amongst the bleached shells, we found several small, white discs which puzzled us at first, until we realised that they were gastroliths or "stomach stones".

Crustaceans must moult their outer skin to allow for growth, the new softer skin beneath expanding sufficiently to cater for the increased body size before it hardens.

Just prior to moulting, the Yabbies develop reserves of calcareous matter in the form of nodules in the stomach; these dissolve after the old skin is shed, and it is believed that the minerals thus released or "digested" are necessary in the hardening of the new skin.

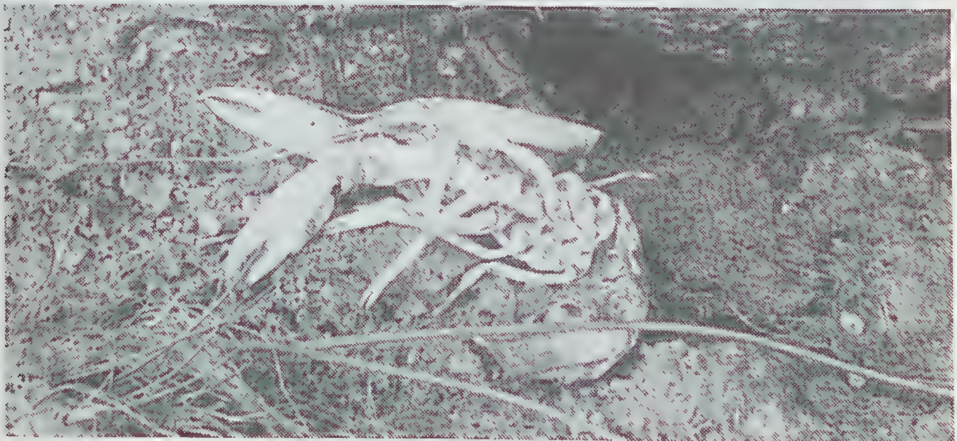
If the Yabbie dies just before or soon after moulting, the gastroliths remain intact; they have been discovered in the stomachs of various predators including cormorants and Murray Cod which had apparently caught their food newly moulted and still soft skinned.

Gastroliths from European crayfish have been known for a very long time and they were called "crab's eyes" or "crab stones"; at one time they were used in medicine as an antacid or absorbent material in treatment of stomach ailments.

Hale, Herbert M. (1927) *The Crustaceans of South Australia.* Government Printer, Adelaide.

Healy, Anthony and Yaldwyn, John (1970) *Australian Crustaceans in Color.* Reed, Sydney.

Trevor Pescott, 4 Victoria Terrace, Belmont, 3216.



Dessicated Yabbie skin lying on the dry surface above the water line of the Ararat Reservoir, March 1982.

Photos by Trevor Pescott

Ferns of Maits Rest, Otways

Frances Poole

A day ferning at Maits Rest in the Otways can be very rewarding. On one of our many trips we listed twenty-two ferns for the area.

Among the most attractive of the Ferns are the Spleenworts and they are easily identified by the linear sori on the underside of the fronds.

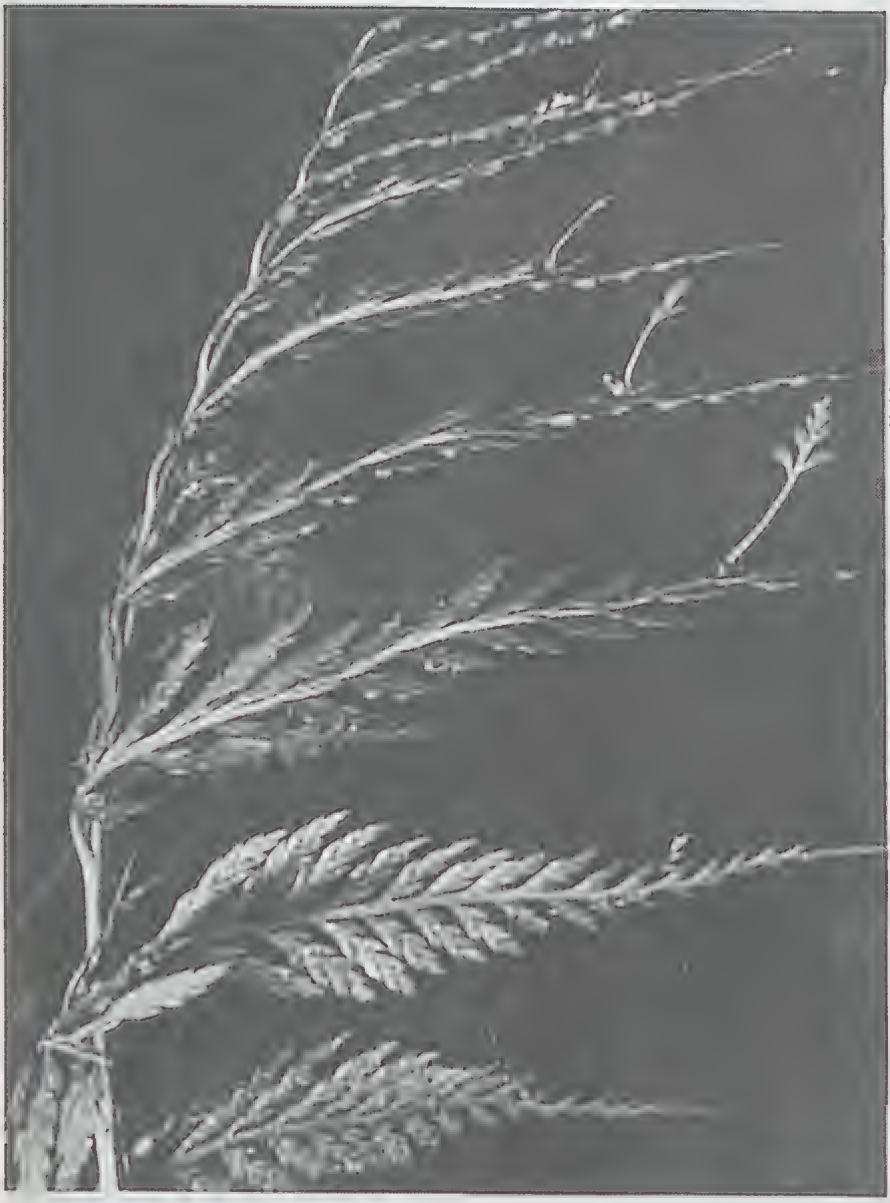
Mother Spleenwort *(Asplenium bulbiferum)* was plentiful, and these plants often develop young plants called bulbils towards the ends of the fronds. As the fronds wither or touch the ground these young plants take root and become independent of the Mother plant.

Another common name is the "Hen and Chicken Fern"

List for 16th February, 1977

Hymenophyllum cupressiforme	Common Filmy Fern
Mecodium flabellatum	Shiny Filmy Fern
Mecodium australe	Austral Filmy Fern
Mecodium rarum	Narrow Filmy Fern
Polyphlebium venosum	Veined Bristle Fern
Cyathea australis	Rough Tree Fern
Dicksonia antarctica	Soft Tree Fern
Culcita dubia	Common Ground Fern
Pteridium esculentum	Austral Bracken
Histiopteris incisa	Batswing Fern
Grammitis billardieri	Finger Fern
Ctenopteris heterophylla	Gipsy Fern
Microsorium diversifolium	Kangaroo Fern
Asplenium bulbiferum	Mother Spleenwort
Asplenium flaccidum	Weeping Spleenwort
Rumohra adiantiformis	Shield Hares-foot
Polystichum proliferum	Mother Shield Fern
Lastreopsis hispida	Bristly Shield Fern
Lastreopsis shepherdii	Shiny Shield Fern
Blechnum chambersii	Lance Water Fern
Blechnum wattsii	Hard Water Fern
Tmesipteris billardieri	Long Fork Fern

Frances Poole, 134 Fitzroy St., East Geelong, 3219.



Mother Spleenwort (*Asplenium bulbiferum*)

Photograph by F. Poole

Late Nesting of Rufous Fantail

Trevor Pescott

The G.F.N.C. held an excursion to Lake Elizabeth in the Otway Ranges on 21 February 1982. The most unexpected observation made was of a nest of a pair of Rufous Fantails *(Rhipidura rufifrons)* containing one small young.

The nest was built on a long, slender branch of a Blanket-leaf *(Bedfordia salicina)* growing from the top of an eroded section of the north bank of the river, shaded from the sun but clearly visible from the river bed below.

Although about three metres above the bed of the river, the nest was below the top of the bank, so that by climbing along the bank, one could see down into the nest.

There was one young, naked and dark skinned, with only a trace of pin-feathers present; it would be less than one week old, and it could be expected that the young would not be fledged for at least eight to ten days.

The Rufous Fantail is a migrant that usually leaves the Otway forests in March; birds move through the Geelong suburbs in that month – I do not have any records of the birds later than March.

Mrs. W. Denney had one observation of a Rufous Fantail in the Otways in May (pers. comm.) but that is an extra-ordinary sighting even though Belcher (1914) notes them as present in Geelong from March to May.

In eastern Victoria, Loyn et al (1980) record them as a summer visitor mainly from October to March.

Belcher made note of a nest found at the Cumberland River (Otways) on 19 January 1908 which contained "two slightly incubated eggs", but that nest would have been fully two weeks earlier than the Lake Elizabeth nest.

* **Footnote:**– Mr. E. Errey checked the nest on 25 February and found it to be empty; nor could he find the adult birds.

Belcher, Charles F. (1914) *Birds of the District of Geelong, Australia* Geelong, Griffiths.

Frith, H.J., ed. (1969) *Birds in the Australian High Country.* Sydney, Reed.

Loyn, R.H. Macfarlane M.A., Chesterfield E.A. and Harris J.A. (1980) Forest utilisation and the flora and fauna in Boola Boola State Forest in south-eastern Victoria. Forests Commission, Victoria, *Bulletin* No. 28.

Pizzey, Graham (1980) *A Field Guide to the Birds of Australia.* Sydney, Collins.

Trevor Pescott, 4 Victoria Terrace, Belmont, 3216.

Rufous Fantail *(Rhipidura rufifrons)* at nest, Lake Elizabeth, 1982.
Photograph by T. Pescott.

Birds seen on the Lake Elizabeth (Otways) Excursion 21 February, 1982

Trevor Pescott

The G.F.N.C. excursion on 21 February, 1982 was held at Lake Elizabeth, a lake formed in 1952 when a landslide blocked the east branch of the Barwon River. It is situated east of Forrest between Thompson Track and Kangaalang Road, and the access track used on the excursion leads off the latter road.

Club members drove their cars to a car park adjacent to the river, a short distance below the landslip that blocked the river, and spent about five hours just exploring the river for a short distance downstream from the car park, then walking up to the lake and following the east shore using the F.C.V. walking track.

The weather throughout the day was fine and warm.

Birdlife generally was not prolific, the following species being recorded during the day:

Australasian Grebe: A small number was present on the lake, mainly at the shallower, northern end.

White-faced Heron: One perched on a limb of a dead tree in the lake.

Pacific Black Duck: A few were seen on the lake.

Chestnut Teal: Two birds, dark plumaged females or immatures, were seen on rock pool downstream of the car park; when disturbed they flew further down the river valley, settling on a pool surrounded by tall forest.

Grey Goshawk: Three white-phase birds were seen in dead trees at the top (northern) end of the lake, their plumage contrasting with the dark green forest backdrop.

Eurasian Coot: Several – at least 10 birds – on the lake. One was a pale-coloured juvenile.

Sulphur-crested Cockatoo: Small groups seen flying over the forest – a reminder of how close the cleared land and pine plantations are to the forest.

Crimson Rosella: Very plentiful. They were feeding on blackberries. One unusual call was noted that contained elements of both King Parrot and Sulphur-crested Cockatoo.

Fan-tailed Cuckoo: One bird was heard calling.

Laughing Kookaburra: Several heard calling, but none was seen.

White's Thrush: One seen below the car park.

Flame Robin: Several noted on the Kangaalang Track at the entrance to the access road.

Eastern Yellow Robin: Quite plentiful.
Grey Shrike-thrush: One of the more plentiful birds.
Rufous Fantail: Several were seen at the top (north) end of the lake. A nest with one small young was found below the car park.
Grey Fantail: Very plentiful. Many juveniles seen. One bird with a pure white tail was observed by R. Lavery.
Superb Fairy-wren: Quite plentiful.
White-browed Scrubwren: Numerous.
Brown Thornbill: Many seen.
White-throated Treecreeper: A conspicuous bird, it was plentiful, being more often heard than seen.
Yellow-faced Honeyeater: Common along the river.
White-naped Honeyeater: A few were seen.
Crescent Honeyeater: Heard calling from the top of the forest trees.
Silvereye: Very plentiful. They were feeding on the ripe blackberries.
Euorpean Goldfinch: Two birds seen in an open area near the car park.
Red-browed Firetail: Very common. Many were immature birds lacking the red coloration on the face and beak, and with little red on the rump.
Pied Currawong: Heard calling.

Trevor Pescott, 4 Victoria Terrace, Belmont, 3216.

President's Annual Report 1981/82

1981 – 82, our twenty-first year, has concluded with the most important social activities that the G.F.N.C. has held; the absolute success of our birthday dinner at Rosnashane and our Saturday barbecue at Tallawalla (Moggs Creek) is undeniable.

Right throughout the year our meetings have been well attended and this must be largely due to the outstanding quality of the guest speakers who have visited us – Malcolm Calder, Marilyn Truscott, Nicholas Holmes, Barry Wilson, Heather King, Les Harris, Barbara Wilson, Pauline Reilly, Geoff Parr-Smith and Fredy Mercay. Our one Members' Night was equally successful and enjoyable.

The Club excursions have taken us to Gellibrand, Collendina, Avalon, Flat, Eastern Park, Ingleston Gorge, Pollocksford and Lake Elizabeth while campouts have been held at Bridgewater, Carlisle River, Princetown, Clarkesdale and Sherbrooke River. 'Indoor' excursions have been held to the Marine Sciences Laboratory and the National Museum.

Our working bees have continued to receive excellent support with many volunteers attending the You Yangs boneseed-pulling days and the Belmont Common maintenance afternoon.

It has been a pleasure to work with the committee over the last twelve months, and I wish to thank each member for their willing participation in the meeting and other activities, and for their continued support to the Club. There is a very large work-load to be undertaken, most of it falling on Valda Dedman as Secretary – a special 'thank you' for the way that she has directed her energy to completing every task necessary for the flow of the Club activities, meetings, outside education, and conservation projects.

Two of our Committee members have resigned, due in each case to a desire to undertake extensions to their studies – we wish them well and look forward to their continued interest in the Club as their time permits.

Both Botany and Bird Study Groups are flourishing due to the support of the members who attend them – the latter averages 15-20 people at its meetings and outings, while the enthusiastic botanists continue to seek and list plants from many local areas.

It is to be hoped that the Mammal Group may re-form – the purchase of 10 box-traps through our Ingram Trust grant, and the issue of a permit to trap and release mammals, leaves the way clear to undertake this important club activity.

Over the last year, members have been directly involved in some bird study work – the Orange-bellied Parrot field days and the wader censuses have provided an input to structured bird-counts organised outside the Club.

Our February Fete was held. . . . with some misgivings on my part I must admit; but the support of members in organising and attending it showed that my fears were unfounded. Extra income above subscriptions is essential and whether next year we hold a fete or opt for another means of raising money is yet to be decided.

Publication of *Geelong Naturalist* and the *Newsletter* has had more than a fair share of problems – but although we may have overcome most in relation to the former, without an Editor the *Newsletter* will continue to be produced in an ad-hoc manner.

Through a very generous donation, we have been able to purchase a telescope and a microscope – to the member who made that possible, go the sincere thanks of us all.

The work-stall has continued to function effectively at each meeting, and the funds raised in this way have enabled us to add several reference books to our library.

Books are an integral part of our study of natural history, and I wish to express the thanks of all members to the work-stall organisers and to our librarian for looking after books so efficiently.

Not so successful have been our efforts to develop a color-side library – and I would make a plea to all members to pass on to Diana Primrose any spare slides of Club activities both current and 'historical'.

During the year, I had the pleasure of presenting Ted Errey with Life Membership of the Club in recognition of the outstanding work he has done for our members.

Congratulations were offered to Jack Wheeler on his receiving an Advance Australia Award.

In the conservation field, the G.F.N.C. has again been active, taking action to help preserve Belcher's property at Batesford, Blue Waters at Ocean Grove, the foreshore at Point Henry and the Drakes Road Reserve (Drysdale).

We have opposed wood chipping in the Otways and logging in the M.M.B.W. catchments, supported retention of the Urquhart's Bluff heathland, urged the removal of geese and ducks (exotics) from Balyang, expressed concern at the proposal to develop a tip at Marshall, and made submissions to the L.C.C. on the Ballarat and Grampians Area Reports.

An extensive Land Use Policy report was made to the Senate Enquiry, doubts raised on a proposal to put a rifle range on Gum Flat, and we have urged finalisation of L.C.C. recommendations for the Inverleigh Common, made a submission to the National Estate, objected to proposals to clear land on

Falcon's Bluff (Pt. Addis) and to turn the Belmont Common into a water sports centre.

We have met with representatives of the Port Phillip Authority and Fisheries and Wildlife Division, reviewed plans to widen the Great Ocean Road near Cape Otway and questioned logging in the Otway National Park.

Educational activities have been equally as involved and we have supported the Scouts in their Good Turn day (boneseeding at the You Yangs) and assisted in the Sprockets and Flares Festival (schools' media productions), conducted a Gang-gang Cockatoo census with public involvement and participated in a Roadside Conservation Seminar sponsored by the C.C.V.

This has been a busy year — but amongst all these activities, one stands out in my mind as a highlight. In October we conducted a 'birdwatch' for disabled people at the Belmont Common as part of the I.Y.D.P. activities — my thanks go to Valda Dedman and her helpers in making this such an outstanding success.

Trevor Pescott, President.

Treasurer's Report 1981/82

General Account:

This year the Budget Sub-committee has had a close look at our budget, in view of rising costs. We found that the **basic** running expenses of the Club (printing, rent, postage, insurance, and petty cash) are in the order of $3,300. If we estimate an average return of $10 from each membership unit (approx. 320), a 100% retrieval of subscriptions would barely cover our basic running costs today. To be a viable organization, subscribing to other clubs, improving our library and equipment, and supporting like-minded groups, extra funds in the order of $1,000 would be required. Some form of fund raising becomes a necessity. We can also suspect it will be necessary to increase our subscription rates, perhaps next year.

Retrieval of subscriptions must improve. In December 1981, of 315 membership units, only 210 (66%) were financial. Our annual subscriptions are due on 1st April. This year we considered it necessary to send subscription renewal notices to all our members. We feel it is mainly due to forgetfulness, and not lack of interest, that so many members are unfinancial. We realize that many members are very prompt with their subscriptions and need no reminding, it is hoped that those members in arrears will realize the situation and bring themselves up to date.

On paper our General Account income exceeds expenditure by $101.20. $661.00 of this is payment received for the 21st Birthday dinner, which will be paid out at the end of March.

This year we have actively supported several groups. $500 was donated to the Australian Conservation Foundation to support the Urquhart's Bluff Appeal, another $25.00 was given to the A.C.F. for the "Save the Franklin" Appeal, and $10.00 was donated to the Science Teachers Association Talent Search.

We have acquired some expensive pieces of equipment, largely paid for from a $500 donation from one of our members last year. This equipment includes our microscope ($315), telescope ($270), and tripod and carrying case ($43.20). The $128.20 in excess of the $500 came from general funds.

During the year we received two substantial donations – $342 from the City of South Barwon Recreational Vouchers, and $100 from the Ingram Trust for the purchase of ten Elliott Type A animal traps.

The fete has been a great success, and boosted our ailing funds by $676.20. Our thanks go to all those people who worked hard for this event. The trading table has contributed a very helpful $133.97, and our thanks go to those people who put in their time and energy to help the Club in this way.

In addition we still have $1,500 Deposit Stock in our General Account, which can be called on if necessary. This will not support us for long however, if our subscription retrieval rate does not improve.

Excursion Account:

The excursion account has increased by the interest it has gained ($15.69). Income from the two campouts (Princetown and Sherbrooke River) has equalled expenditure.

No. 3 Account:

This special purpose account for the booklet "The Care of Injured and Orphaned Native Birds and Animals" by Mr. Jack Wheeler, is in a healthy state with $2,000 in Deposit Stock, and this year's income from donations and interest being $298.80 in excess of expenditure.

Treasurer's Statement

for year ending 12th March, 1982

General Account

Income	$	Expenditure	$
Subscriptions	2,262.05	Printing	1,647.15
Donations and sundries	526.93	Postage	318.94
Sundry	2.50	Petty Cash	102.00
Sale of Publications	96.10	Subscription	169.50
Interest	204.09	Rent	69.50
Fete	676.20	Purchase of Publications	112.85
Trading Table	133.97	Insurance	210.78
Sale Badges and Car stickers	20.40	Office and Library	155.34
Tickets 'Rosnashane' Dinner	661.00	Donations	773.00
		Sundry	921.98
	4,583.24		4,481.04
Excess Income over Expenditure	$102.20		

Excursion Account

Income		Expenditure	
Campout to Princetown	$ 537.00	Campout to Princetown	$ 537.00
Campout to Sherbrooke River	120.00	Campout to Sherbrooke River	120.00
Interest	15.69		
	672.69		657.00
Excess Income over Expenditure	$ 15.69		

No. 3 Account

Income		Expenditure	
Donations	$ 331.44	Postage, Duplicating, Typing	$ 244.26
Interest	269.92	Petty Cash	58.30
	$ 601.36		$ 302.56
Excess Income over Expenditure	$ 298.80		

Deposit Stock

General Account	$1500.00
No. 3 Account	$2000.00

Diana Primrose, Treasurer

Birds of a feather fight together

A. Eames

A year ago I wrote about the Kookaburras nesting in the Anglesea presbytery gardens and the feeding of the young.

I was looking forward to a repeat meeting in 1981. Sure enough, on 4th August a Kookaburra was seen exploring the same nesting hollow, and on 13th September food was brought to the hollow.

But some days after, two Pied Currawongs began a persistent attack on the Kookaburras, flying repeatedly just over their heads, calling loudly, twice a Kookaburra was hounded to the ground, and still attacked. The Currawongs were so persistent and fierce that the Kookaburras deserted the nest and left the area entirely. It was only in January 1982 that they returned to their regular perching trees *(eucalyptus viminalis)* in the presbytery grounds and rendered their regular "laughter" song in the evenings.

Two Kookaburras returned briefly on 30th November 1981, but one was chased away by two Magpies, and the other driven off by five Magpies!

Meanwhile I found the nest of the Pied Currawongs close by, on top of the swan off trunk of a Manna Gum, about 8 metres high, the nest held in place and concealed by the new branches growing from the cut area. The two young left the nest on the 1st November and were fed nearby till mid December.

Incidentally, the Currawongs ignored my presence and would often feed close to me. None of the various feeding birds tried to attack me.

However, the Pied Currawongs did not have everything their way. In mid November a Red Wattlebird was seen to harry a Pied Currawong several times, although rather ineffectually. Soon afterwards two young Red Wattlebirds were seen in the grounds, so the reason for the parental care was obvious.

Magpies were also harried by the Currawongs, in early December, but were not frightened by them, in fact the Magpies reacted sharply each time, turning to peck back at the Currawongs. Naturally the Magpies had young nearby and were feeding them in the presbytery grounds.

However, by Christmas (1981) the young of all species had dispersed and peace reigns once again in my garden, even though Kookaburras, Magpies, Pied Currawongs, Red Wattlebirds and many other species of bird are observable daily here.

Fr. A. Eames, St. John the Baptist Presbytery, Winchelsea, 3241.

Our visit to Selborne

Jess and Arthur Collins

On the Club's 21st anniversary meeting, in accordance with the prevailing spirit of nostalgia, our speaker Dr. Malcolm Calder made mention of Gilbert White, curate from 1751 to 1793 of the church of St. Mary, Selborne, Hampshire, who has been called the first all-round British field naturalist. Having long been admirers of White's meticulous observations of the natural scene as set out in his book *The Natural History of Selborne*, one of our early objectives when visiting England in 1976/77 was to see for ourselves what remained of his village and the countryside around it. We were not disappointed. Selborne has changed little in the 200 years since he travelled the country on foot or horse-back, observing and noting the changing scene in his Journal, the source of the material in the series of letters which comprise his published book.

His house "The Wakes" still stands, though altered and enlarged by later owners, and now houses the Gilbert White Museum, containing various memorabilia and examples of the flora and fauna of the district. The upper floor is devoted to another museum dedicated to Captain Oates, that "very gallant gentleman" who walked out of his tent to his death in the snow to give his comrades of Scott's last expedition to the Antarctic a better chance of survival. The Oates family, who lived in the parish, established the museum as his memorial.

Opposite "The Wakes" is a small square known as the Plestor, mentioned by White as a traditional gathering place for the villagers. Behind it lies the church which he served for so many years. (He apparently had no desire for advancement in the hierarchy, which would have entailed leaving Selborne.) It remains much as it was in the 18th century, but with the addition of a memorial window in which the birds and animals referred to in his work are depicted in stained glass. In the churchyard nearby is a very ancient yew tree; we sat in its shade and examined with interest the bright red fleshy berries which it bore in profusion. No doubt it dated from the times when yew trees were required by law to be planted in such situations in order to keep up the supply of bowstaves for the King's armies.

Behind the village to the south-west rises a steep chalk hill clad with a dense beech-wood, the "Hanger" as it is still called. Up the steep slope runs a zigzag path built by White and his brother in 1743, giving access to Selborne Common at the top of the hill. We struggled up this path in a cold driving October rain and were glad of our gumboots and anoraks for a walk through the woods at the top, mostly oaks and beaches with an understory of hawthorn, holly and briar roses, all crimson with berries. Here we had our first taste of beechnuts – a delightful flavour but fiddling things to peel. Later, we walked through the churchyard where White is buried and along the Selborne stream to the shallow valleys called the Short and Long Lythes, where a nature trail is now established.

White was a true field naturalist in his close observation and recording of a wide range of natural phenomena, and in forwarding his notes to those such as the zóologist Thomas Pennant, who could fit them into the broader picture of scientific zoology, which in those days was largely occupied with description, naming and classification within the Linnaean system. He was the first to distinguish the three diferent species of "willow wrens", now known as titmice (Paridae). He added the harvest mouse and the noctule bat to the known British fauna, and discussed the ecology of earthworms in terms which foreshadowed and may have inspired Darwin's classic work, concluding that "a good monography of worms would offer much entertainment and information at the same time, and would open up a large and new field in natural history." Perhaps his major error was his failure to abandon the old belief that British swallows and martins hibernated in hidden places rather than migrated to the south, but, before the days of bird-banding and with very few observers in the field, this was difficult to disprove and the belief persisted well after his time. Against this, he did discover that the ring-ousel was a regular migrant, which was not previously known.

Our day at Selborne was rewarding indeed and we came away with an enhanced appreciation of Gilbert White's life and work (and a copy of his Journal from the Museum). On the way home we called at Chawton, a few miles from Selborne, to see the cottage home of Jane Austen, whose life overlapped that of White by a few years. We could not help noticing the sharp contrast between the elegant regency society of her novels and the comparative simplicity of her home life, and even more so with that of the scholarly country parson, concerned with caring for his small flock and farming his land, but always observant of the finest details of the natural environment of his time and place.

Jess and Arthur Collins, 9 Warwick St., Herne Hill, 3218.

HOUR COUNT No. 39
BUNDALEER RESERVOIR, SOUTH AUSTRALIA.

Roy Wheeler

South Australia is a dry state, with only four rivers that flow all the year round. Of these, only the Murray River is dependable, the other three being suspect. For South Australia to grow it was imperative that it make a series of reservoirs to give it the life blood—water for household use, and farming by means of irrigation. Water was needed particularly in the mid-northern areas of the State, noted for wheat farming and as the finest Merino sheep areas in Australia. The Bundaleer Waterworks was first proposed in the early 1890's as an additional source of supply to the Beetaloo system, to supply water for farming areas, the city of Port Pirie, and the mining towns of Wallaroo, Kadina and Moonta on York Peninsula.

When only the Beetaloo system was in operation, it was soon apparent to some that it could not supply the needs of such a vast area and that Bundaleer should be built, although this was opposed by both houses of Parliament. A continued drought forced the issue, and the Bundaleer project began in 1898. The actual reservoir with a capacity of 6370 ML (1400MG) was a conventional earthern gravity dam, fed by the Bundaleer, Baderloo and Freshwater Creeks, and the Broughton River, through 26 kilometres of concrete lined channels. The dam was puddled with clay core, materials being found on site for all purposes. Both steel pipes and cast iron pipes were employed when reticulation began, firstly in the connection with the Beetaloo system and then as a system of trunk and reticulation mains reaching Redhill, Balaklava, Snowton, Brinkworth, Port Wakefield and adjacent Hundreds. The scheme was eventually completed in 1902. The scheme caused controversy mainly because the cost of the channels was deemed excessive and the estimates of annual supply of water insufficient. Since the construction of the first Morgan to Whyalla pipeline in 1944, the importance of Bundaleer has diminished to some extent. It is still an extremely useful source of water to the large Northern Region distribution system.

Whilst staying at Jamestown some 32 kilometres from Bundaleer, three of us visited the Bundaleer Reservoir. Its capacity is 1,402,000,000 gallons; full supply 975.5 feet above sea-level and low supply 914.10 feet above sea-level. We parked our cars across the Reservoir from the entrance and from the edge of the pipe plantation commenced an hour count of all birds seen and heard within binocular range from a fixed spot. Try it some time!

Bundaleer Reservoir. S.A. April 24, 1980
3.30 to 4.30 p.m. Mostly dull, mild with a light northerly breeze. Three and a half inches of rain had fallen a few days previously. Mrs. Eva Fleming, Lyn Pedler and Roy Wheeler.

Birds in order of sighting: Australian Pelican, 1; Yellow-billed Spoonbill, 1; White Ibis, 2; Black Swan, 7; Coot, 12; Whistling Kite, 1; Willie Wagtail, 3; Nankeen Kestrel, 1; Black Duck, 15; Brown Hawk, 3; Musk Duck, 10; White-faced Heron, 1; Fork-tailed Kite, 2; Little Black Cormorant, 2; Pink-eared Duck, 20; Grey Teal, 50; Little Pied Cormorant, 5; Grey Fantail, 1; Little Raven, 6; Blue-billed Duck, 5; Blue-winged Shoveler, 5; Magpie-lark, 11; Crested Grebe, 10; Pipit, 1; Black-fronted Dotterel, 2; Galah, 400; Black Falcon, 1; Purple-crowned Lorikeet, 3; Starling, 3; Little Grebe, 2; Welcome Swallow, 3; Black-shouldered Kite, 1; Rock Dove (Feral Pigeon), 3; Crested Pigeon, 1; Brown Goshawk, 1; White-eyed duck, 3; and White-backed Magpie, 2.

Total 37 species and 600 individuals.

Roy Wheeler, 19A Upton Rd., Windsor, 3187.

The Birdwatcher

Lo the Birdwatcher. He riseth early in the Morning and upsetteth the whole household.

Mighty are his preparations. He taketh with him his pad, pen and Pizzey (or Slater), his binoculars, camera and tripod, luncheon and liquid refreshment.

He goeth forth into the Field (and Lane) with a great hope in his heart.

Prolifically doth he tick his check list with his pen.

(viz. Brolgas in the Barrabools
Birds of the Night in Malop St.,
Orioles at Orrizonte's,
Pratincoles in Pakington St.,
Waders in the Eastern Beach Pool.)

And when the day is far spent he returneth smelling of Green Ginger Wine, and the truth is not in him.

Anon, with apologies to Nino Culotta in *Gone Fishin'.*

A Barwon River Freshwater Mussel

Valda Dedman

One of the specimens of interest collected by Club members on the excursion to the Barwon River at Pollocksford in October 1981 was an empty shell of a freshwater mussel, one of many lying in a backwater. A more careful search in March 1982 revealed that live specimens are relatively abundant in the sand and silt of the stream bed in shallow water near the bank. Further reading has shown that freshwater mussels are fascinating creatures.

All freshwater molluscs derive originally from marine forms; many have developed adaptations for a freshwater environment; some, such as garden snails, have become completely terrestrial. The mussels are the least changed in structure and habits from their saltwater cousins.

Basically all mussels consist of a mantle which encloses a body mass with a muscular foot but no defined head, encased in a limey double shell, whose two valves are hinged together at the back. The structure of this hinge is important in species identification, the type and size of the interlocking teeth being a distinctive feature. The shape, size of the sculpturing of the shell also aids identification. Thus the form of the umbo or beak, which is a raised area adjacent to the hinge where growth first begins and is therefore the oldest part of the shell, the type of growth rings around it, the colour of both the outside and inside of the shell – the latter having a pearly coating known as nacre, and the arrangement of muscle scars inside the shell may all be of significance.

The mussel is a filter feeder, extracting its food from the water in which it lives. For this purpose it has two siphons situated close together at the back, an inhalent siphon through which water is drawn and an exhalent or anal siphon. It has a pair of complicated gills which are used not only for respiration but to help in feeding. The gills are richly covered in hairs which beat to produce a current and also act as a food filter. Food particles are trapped in mucus and then passed along by the hairs in sticky strings to the mouth which lies deep in the body mass towards the front of the animal. Food particles are sorted out right throughout the digestive process.

I have not been able to find much information on the digestive tract of Australian freshwater mussels, but bivalve stomachs in general are remarkably complicated and contain a peculiar "rod", a crystalline style which is kept rotating by hairs in the pocket which house its rear end. The front end moves against a gastric shield and gradually wears out, only to be replaced by secretions at the other end. The style releases enzymes which digest carbohydrates. Freshwater mussels feed on zooplankton, phytoplankton and organic detritus.

Mussels lead a somewhat sedentary life on the whole, but they can and do use their muscular foot (from which their name is derived) to move from place to place. The foot is protruded through the shell valves, and forward movement is carried out by a series of muscle expansions and contractions.

The sexes are separate, and fertilization occurs when sperm released into the water by the male are swept through the inhalent siphon of the female and meet with the eggs in the gills. Here the embryo develops in a special pouch known as the marsupium into a glochidium larva, a tiny creature in a heart-shaped shell of its own which is usually equipped with a hook on each valve.

The larva is shot out of the parent mussel and attaches itself by its hooks to the gills or fin of a passing fish. Here it lives as a parasite in a cyst until it has developed into a miniature adult, growing a permanent shell from the inside, and a hair-covered foot. When it is ready to exist by itself it drops off on to the bottom of the river or lake and slowly increase in size.

It has been suggested that some British freshwater mussels live about 10-16 years, but little is known about the complete life history of Australian freshwater mussels. Experiments with one species found in the Murray River indicated that the callop or golden perch was the most likely host fish.

The mussels found in the Barwon River near Pollocksford Bridge were almost certainly *Velesunio ambiguus,* a species widespread in the eastern half of Australia, in stable silty or sandy mud in seasonally shallow water.

This species is greatly variable in shape. The shells are generally just under twice as long as they are high, rounded in outline with little wing development and with a smooth beak slightly to one side of centre. They are dark brown to bluish on the outside and their pearly-white inside may be spotted brown, orange, purple or pink. The hinge is long and fairly uncomplicated. Coarse growth lines are visible on the shell which is often eroded away around the umbo to a whitish colour.

I have found shells up to 100mm in length in the Darling River near Wilcannia, but nearly all those found in the Barwon River at Pollocksford were quite small, only 5-15mm long, although a few reached 60mm. Most were empty shells; in fact there were thousands of these, mostly tiny. I do not know if this high mortality is normal. There were however, sufficient living shells to indicate a viable population.

Freshwater mussels were a source of food to the aborigines and they are no doubt eaten by waterbirds. Gordon McCarthy (pers. comm.) relates that Swamp Rats also eat them, crushing the shells open on a flat rock beside the river.

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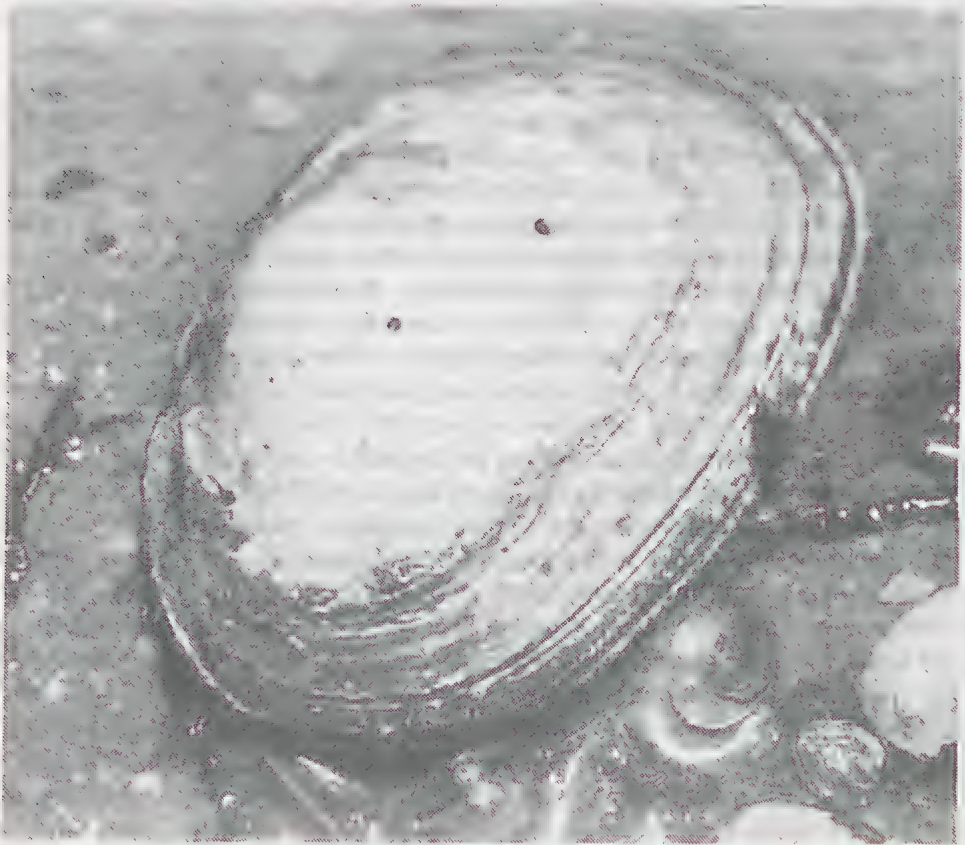

A Barwon River Freshwater Mussel – Photo by Valda Dedman

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Editorial

Conservation requires constant vigilance. Just when we are relieved to hear good news (Urquhart's Bluff, the suspension of plans to woodchip the Otways) we are worried by new prospects of environmental damage – like the rubbish tip (to last 40 years!) proposed for Sparrovale on low-lying land near the Barwon, far too close to the ibis colonies of Reedy Lake. When such danger threatens, members of the Geelong Field Naturalists Club are often consulted as the local experts on the ecology, flora and fauna of our area. If our information is to be reliable and useful, we need to be forearmed with knowledge. It is helpful to be able to say how many ibis nests there are (usually more than 10,000), or that on the weekend before the opening of the 1982 duck season there were more Grey Teal on Reedy Lake than anywhere else in Victoria (more than 7000 of them.) We can add to knowledge by carrying out or helping with studies and surveys like the counts of ducks and waders sponsored by the Royal Australasian Ornithologists Union, or Cliff Beauglehole's work on the distribution of plants; and we can certainly monitor and record the plants and animals of our own local region. We need also to do our part to ensure that the information is published so that it can be retrieved when it is needed. Publication of this basic local information is an important function of the *Geelong Naturalist.*

Margaret Cameron

Note: In the last issue, the caption on the illustration to Andrew Wegener's "Common Noddy beachwashed at Point Henry" is confusing. The bird was found on July 19, 1981; the date shown in the caption (and on the label on the specimen) is the date it was registered at the National Museum, February 9, 1982.

A Record of the Buff-breasted Sandpiper for Queenscliff, Victoria.

Lawrie Conole

20 AUG 1982

On 21st January, 1982, Eric Finley and I observed a Buff-breasted Sandpiper *Tryngites subruficollis* at roost with Rednecked Stints *Calidris ruficollis* and Curlew Sandpipers *Calidris ferruginea* on the sand island adjacent the Queenscliff Yacht Club. This constitutes the first documented record for the Bellarine Peninsula and the eleventh such record for Australia. (Klapste 1977, Pizzey 1980, Smith 1977, Thomas 1968, Van Gessel 1979).

The Buff-breasted Sandpiper is a rather rare species, breeding in arctic Canada and Alaska, and wintering on the pampas of Argentina and Uruguay. It prefers the dry grass plains to wet habitat, but is known to frequent tidal mudflats during migration (Stoud 1967). The species is infrequently seen outside of the Americas, although some birds migrate annually to Britain. As these occurences are well documented by Klapste (1977), I will not repeat them here.

The bird was observed in fair sunlight at approximately 09:45 hrs. on a fairly high tide. It was viewed through 10 x 50 and 8 x 20 binoculars at distances ranging from 20 – 10 metres. When approached closer than 10m, the bird flushed and was not seen again.

A field description was taken at the time and reads as follows: "1.5 – 1.75 times size stint. Upright stance, short neck at roost, short slightly decurved at tip bill, tail short – not exceeding folded wings or very little difference, buff-brown colour all over, lighter on chest. Remained apart from other waders. White on tail tips and perhaps on trailing edge of wings in flight, very pale underwing. Flight action jerky, almost like Common Sandpiper but high. Plover-like sandpiper with roundish head. Similar size to Sharp-tailed S/P or Curlew S/P but distinctly upright stance and peculiar roundish head set it apart. Legs pale – probably orange or yellow – but certainly not black or grey. Some dark speckling or scalloping over buff colouration. Neck normal (length) when alert or moving, constantly lifting left leg off ground as if tangled in fishing line but apparently just a mannerism. I think: Buff-breasted Sandpiper."

Other features of the species such as the pale eye-ring were not observed on this bird as the light did not allow good views of the face. Whilst under observation for 3 – 5 minutes, the bird appeared rather nervous and when approached for a closer view, it flushed and flew over in the direction of Edward Point State Faunal Reserve. The Red-necked Stints and Curlew

Sandpipers did not flush on my approach.

I believe that the characteristic shape and markings safely identify the bird as a Buff-breasted Sandpiper. Finley remarked that it almost resembled a smaller version of the Lesser Golden Plover *Pluvialis dominica.* The similar Ruff (female Reeve) *Philomachus pugnax* is generally a taller, more slender bird, has large ovals of white on the tail and a white wing bar in flight.

At the same place on the following day, Mr. John Pratt observed what we assume to be the same bird, which he also identified as a Buff-breasted Sandpiper. He has since confirmed his observation through field experience of the species in Canada and the consultation of museum specimens. No further sightings at Queenscliff have been reported.

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A Trip to the Continental Shelf off Port MacDonnell, South Australia

Trevor Lumb

On the 2nd May, 1982 I was fortunate to be present on a sea-bird trip to the continental shelf off Port MacDonnell, South Australia. The cruise on a local fishing boat was organised by Margaret Cameron of Geelong and led by Mike Carter of Melbourne.

The following notes are a personal account of this trip, with a review of birds seen and approximate numbers.

I arrived in Port MacDonnell on the evening of May 1st in company with Murray Grant of Ballarat and we booked into the local hotel for the night.

Awakening at 5.00 a.m. on the morning of May 2nd we prepared our thermos and started off in darkness to the pier. At around 6.15 a.m. a spacious boat pulled in alongside and fifteen of us boarded and headed off around the breakwater for what was to be, for me at least, a very exceptional day's birdwatching.

As dawn broke we found the day was overcast and a north wind was pursuing us as we headed out towards the continental shelf. The sea was described as "sloppy" but on the whole the weather posed no problems other than some spray coming over the boat on the trip back in to the harbour.

Silver Gulls and Crested Terns dominated the scene close in-shore with an occasional Australian Gannet being sighted. Albatrosses began to appear as we moved away from the coast with Black-browed Albatrosses, Yellow-nosed Albatrosses and White-capped (Shy) Albatrosses being seen as well as White-fronted Terns, Short-tailed Shearwaters and Wilson's Storm-petrels. A highlight of the trip out was an injured Hutton's Shearwater spotted on the ocean. As the boatman manoeuvered alongside, the bird was hoisted aboard in a bucket attached to a rope, so that we were able to take photographs. Several Hutton's Shearwaters and Fluttering Shearwaters were seen during the day, the more experienced observers being able to distinguish between the two in flight.

We arrived on the edge of the shelf in good time, the distance being about 27 kilometres from the coast, and boatman commenced feeding out the sharks' livers he had brought along. This gained prompt attention and Black-browed Albatrosses, Yellow-nosed Albatrosses and White-capped Albatrosses came to the stern of the boat where they provided a delightful spectacle. A few of the New Zealand sub-species of Black-browed Albatrosses were present, differing by having a more pronounced eye-brow and a light coloured eye, as well as a broader dark leading edge to the white underwing, than the other Black-brows.

Next arrived Wandering Albatrosses and then a Royal Albatross (Southern sub-species). Great-winged Petrels, Sooty Shearwaters, Fairy Prions, and White-faced Storm-Petrels came in around us and a lone Northern Giant-Petrel appeared. Short-tailed Shearwaters were the most numerous species at the shelf. A highlight was a White-headed Petrel that thrilled us by flashing past low over the waves, before returning close enough for good viewings. This uncommon bird appears around Southern Australia mostly in late summer and during winter.

The oily sharks' livers were proving irresistible to most of the birds and there was plenty of action at the stern of the boat as they pursued the food frantically with loud cries and much flapping of wings. At one stage I saw an Albatross sieze a Shearwater and push it underwater momentarily— perhaps an act of aggression or mistakenly grabbing it instead of the liver they were all fighting to reach first.

At length we moved off, following the shelf in a westerly direction. We had not gone very far before an observer spotted something different about one of the pursuing Albatrosses and we stopped in excitement as the bird was identified as an adult Buller's Albatross. Probably all aboard were thrilled by this as it is a bird which has been rarely seen in Australian waters. It landed on the water close by, allowing excellent viewing and to my mind this bird, with its bill edged in yellow and its generally striking appearance, is the most attractive of the seven species of Albatross I have so far seen.

Eventually the flock dispersed as we were running out of berley for them and we cruised west once more before eventually turning in for shore; at this point we saw a Southern Fulmar.

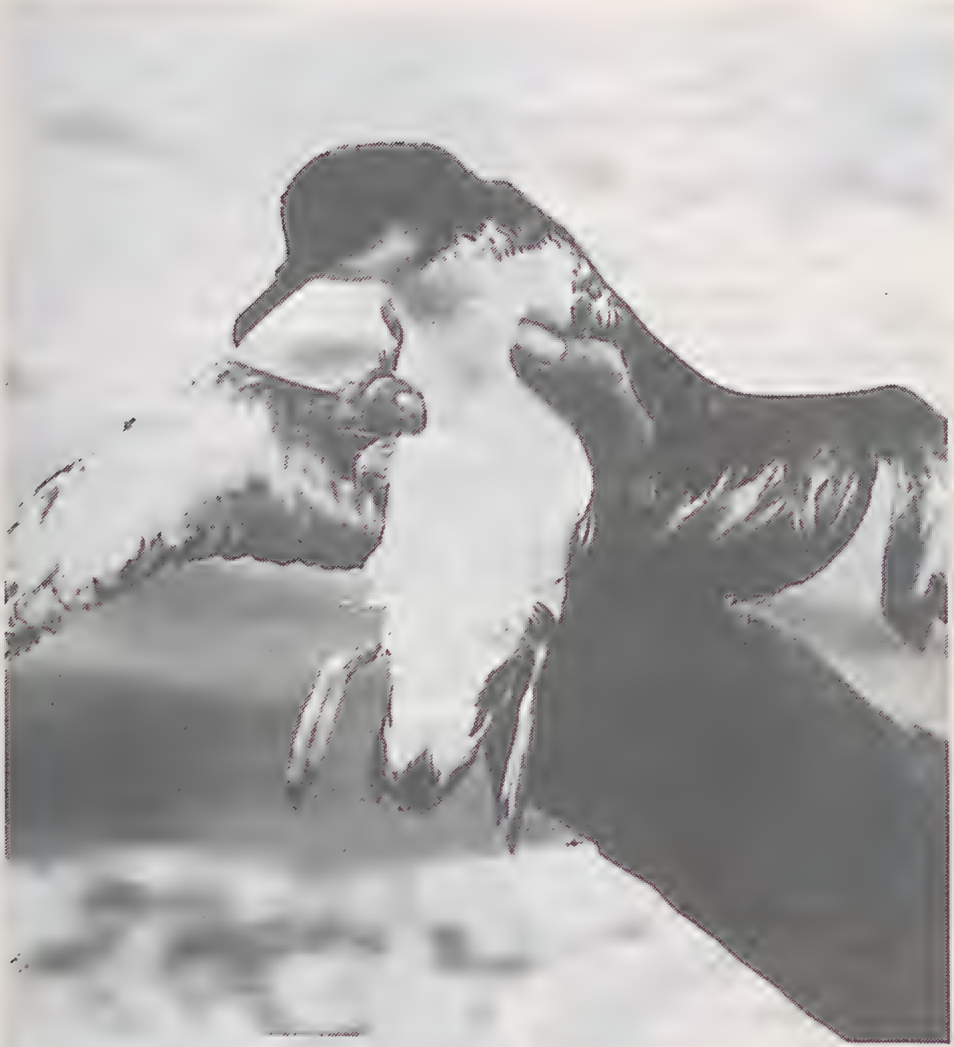
The trip in was highlighted by the appearance of a Flesh-footed Shearwater, which took the day's bird total to 22 species.

Some additional interest was created while we travelled in, when the boatman caught (and landed) a Southern Blue-fin Tuna *(Thunnus maccoyi)* on a lure he was trolling behind the boat. These fish are of importance to the commercial fishery, as well as being eagerly sought after by the sporting angler.

We arrived back at Port Mac Donnell around 3.00 p.m. with plenty of time to undertake the trip home and reflect on the day's activities.

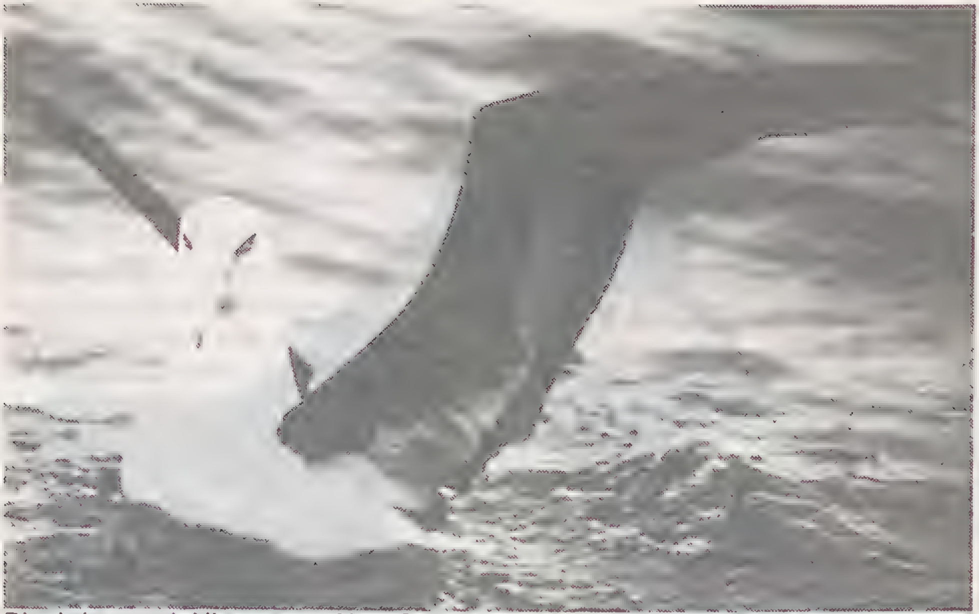
A list of the species seen and approximate numbers as follows—

Wandering Albatross	*Diomedea exulans*	Two birds seen.
Royal Albatross	*Diomedea epomophora epomophora* (Southern subspecies)	One or two birds seen.

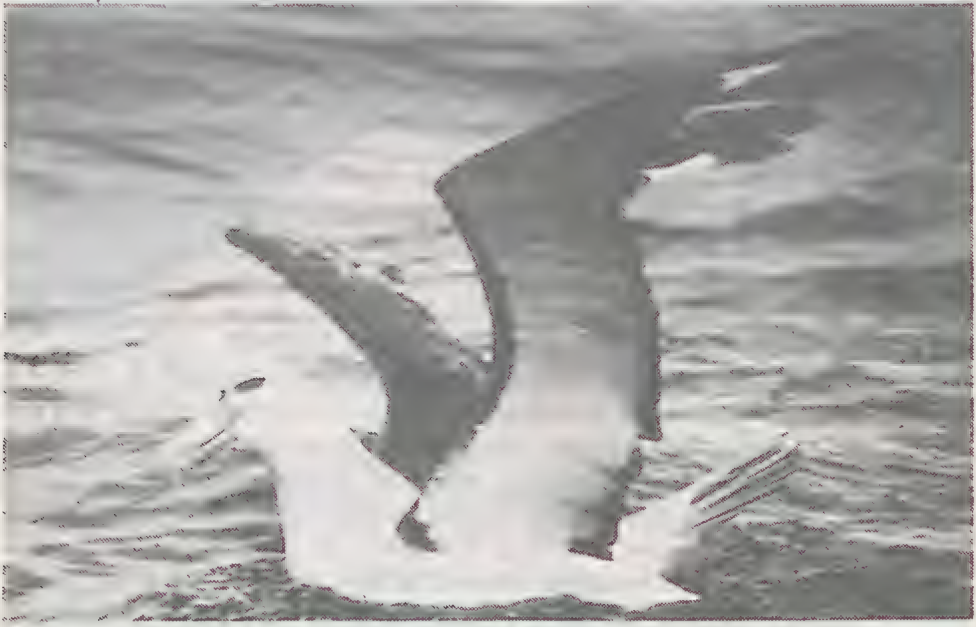


Hutton's Shearwater *(Puffinus huttoni)*

Serventy (1971) summarises the characteristics which distinguish Hutton's and Fluttering Shearwaters: In *huttoni* the upper parts appear darker and the sides of the neck dusky grey. The underwing pattern is darker, with underwing coverts "variably smudgy with dark shafts", and long axillaries "brown, more pointed, rarely white-tipped", while the Flutterer's underwing is "mainly pure white" and the long axillaries are "greyish, square-ended and white-tipped." The undertail coverts of the Flutterer are pure white, while in *huttoni* they are "white, except lateral ones have outer vanes black or grey and black".



Black-browed Albatross – New Zealand sub-species *(Diomedea melanophris impavida)* This sub-species has a pronounced eyebrow, a light-coloured eye, and the dark leading edge to the underwing is broader than in the race *melanophris.*



Shy or White-capped Albatross *(Diomedea cauta cauta)* showing the fine dark edges to the wing.

Buller's Albatross	*Diomedea bulleri*	One bird seen.
Black-browed Albatross	*Diomedea melanophris melanophris*	Most common Albatross, many seen.
	Diomedea melanophris impavida	A few of the New Zealand sub-species seen.
Shy (White-capped) Albatross	*Diomedea cauta cauta*	Moderately common.
Yellow-nosed Albatross	*Diomedea chlororhynchos*	About ten seen.
Northern Giant-Petrel	*Macronectes halli*	One seen.
Southern Fulmar	*Fulmarus glacialoides*	One seen.
Great-winged Petrel	*Pterodroma macroptera*	Between ten and twenty.
White-headed Petrel	*Pterodroma lessoni*	One or two birds.
Fairy Prion	*Pachyptila turtur*	Approximately eight.
Flesh-footed Shearwater	*Puffinus carneipes*	One seen.
Sooty Shearwater	*Puffinus griseus*	Approximately three.
Short-tailed Shearwater	*Puffinus tenuirostris*	Moderately common.
Fluttering Shearwater	*Puffinus gavia*	Several seen.
Hutton's Shearwater	*Puffinus huttoni*	Several seen.
Wilson's Storm-Petrel	*Oceanites oceanicus*	Approximately fifty.
White-faced Storm-Petrel	*Pelagodroma marina*	Three or four.
Australasian Gannet	*Morus serrator*	Approximately six.
Silver Gull	*Larus novaehollandiae*	Common.
Crested Tern	*Sterna bergii*	Moderately common.
White-fronted Tern	*Sterna striata*	Approximately ten.

In summary I should thank Margaret Cameron and Mike Carter for respectively organising and leading this and other such trips, as well as my companion Murray Grant for his personal assistance. I could not commend more highly these trips to others who have not yet ventured out and wish all who do "good sailing".

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T.H. Lumb, 12 Ashley Drive, Mt. Helen, 3350.

Spring orchids at Inverleigh

Frances Poole

The following list, of orchids we have found flowering on the Inverleigh Common in October, includes two additions to the list in *The Inverleigh Common and its vegetation* (Errey 1981): *Caladenia caerulea* and *Thelymitra flexuosa.*

Caladenia caerulea	Blue Caladenia
Caladenia dilatata	Green-comb Spider-orchid
Caladenia patersonii	Common Spider-orchid
Diuris pedunculata	Golden Moths
Diuris sulphurea	Tiger Orchid
Thelymitra antennifera	Rabbit-ears
Thelymitra ixioides	Dotted Sun-orchid
Thelymitra pauciflora	Slender Sun-orchid
Thelymitra flexuosa	Twisted Sun-orchid
Thelymitra macmillanii	Crimson Sun-orchid
Microtis unifolia	Common Onion-orchid

Errey, E.G. (1981) The Inverleigh Common and its vegetation. *Geelong Naturalist* 18: 40-49.

Frances Poole, 134 Fitzroy St., East Geelong, 3219.

Crimson Sun-orchid *(Thelymitra macmillanii)*

Mammals of the Inverleigh Common

An Annotated List

Lawrie Conole and Grant Baverstock

The vegetation of the area covered in this paper is described by Errey (1981), in the form of a plant list.

In terms of habitat for mammals, the Inverleigh Common is uniformly savannah woodland, with a boggy sedge-woodland occurring in a basin on the eastern side of the Inverleigh – Teesdale Road.

Spotlight surveys were conducted by the authors and Paul Moore on regular occasions between 1979 and 1982 with most work being done in 1979 and early 1980. Some species were encountered during daylight hours.

Annotated List of Mammals

Order Monotremata
Family Tachyglossidae

1. *Tachyglossus aculeatus* (Shaw) Short-beaked Echidna
Generally widespread and moderately plentiful in the Geelong area. Only recorded once in this area, although diggings seen more often.

Order Marsupiala
Family Macropodidae

2. *Macropus giganteus* Shaw Eastern Grey Kangaroo
Still moderately plentiful on the Common. Numbers generally decreasing. A substantial threat to this species and to *Wallabia bicolor* is illegal and indiscriminate shooting – commonplace in this area.
3. *Wallabia bicolar* (Desmarest) Swamp Wallaby
Plentiful on the Common; especially in the boggy sedgeland area.

Family Phalangeridae

4. *Trichosurus vulpecula* (Kerr) Common Brushtail Possum
Probably the most abundant native mammal in the area. The numerous hollow *Eucalyptus camaldulensis* and *E. viminalis* provide optimum sheltering sites for this species.

Family Petauridae

5. *Pseudocheirus peregrinus* (Boddaert) Common Ringtail Possum
Not often seen and usually in areas where *Acacia paradoxa* forms thickets suitable for the nests built by this species. Uncommon.

6. *Petaurus breviceps* Waterhouse Sugar Glider
In keeping with normal behaviour for this species, infrequently seen but often heard. Probably widespread and moderately plentiful.

Family Phascolarctidae

7. *Phascolarctos cinereus* (Goldfuss) Koala
Quite scarce on the Common. Probably threatened by indiscriminate shooting – a pitifully easy target.

Order Rodentia
Family Muridae

8. *Rattus rattus* (L) Black Rat
A plentiful introduced species. Most numerous near the tip but widespread in native vegetation too.
9. *Mus musculus* L House Mouse
Seasonally very plentiful, introduced.

Order Lagamorpha
Family Leporidae

10. *Orychtolagus cuniculus* (Lilljeborg) European Rabbit
A very plentiful introduced species.

Order Chiroptera Sub-order Microchiroptera
Family Vespertilionidae

11. *Nyctophilus geoffroyi* Leach Lesser Long-eared Bat
Bats of the genus *Nyctophilus* are very plentiful on the Common. The only specimen that we have examined was *N. geoffroyi,* but *N. timoriensis* would be likely to be present too.
12. *Chalinolobus gouldii* (Gray) Gould's Wattled Bat
A very plentiful species throughout its range. Presumably the Common population is no exception.

Sub-order Macrochiroptera
Family Pteropodidae

13. *Pteropus* sp. Flying-fox sp.
An unidentified *Pteropus* sp. was spotlighted at rest high up in an *Acacia mearnsii* in 1979.

Order Carnivora
Family Felidae

14. *Felis catus* (L) Cat
A problem introduced species. Widespread and uncommon at Inver-

leigh, but causing serious problems throughout Australia due to heavy predation on native fauna.

Family Canidae

15. *Vulpes vulpes* (L) Fox
An uncommon introduced species at Inverleigh but apparently increasing in numbers more recently. Also a serious threat to native fauna.

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L.E. Conole, 85 Clarence Street, Geelong West 3218.

G.A. Baverstock, 13 Helena Street, Highton 3216.

Eastern Grey Kangaroo

Cinnamon Bells: *Gastrodia sesamoides*

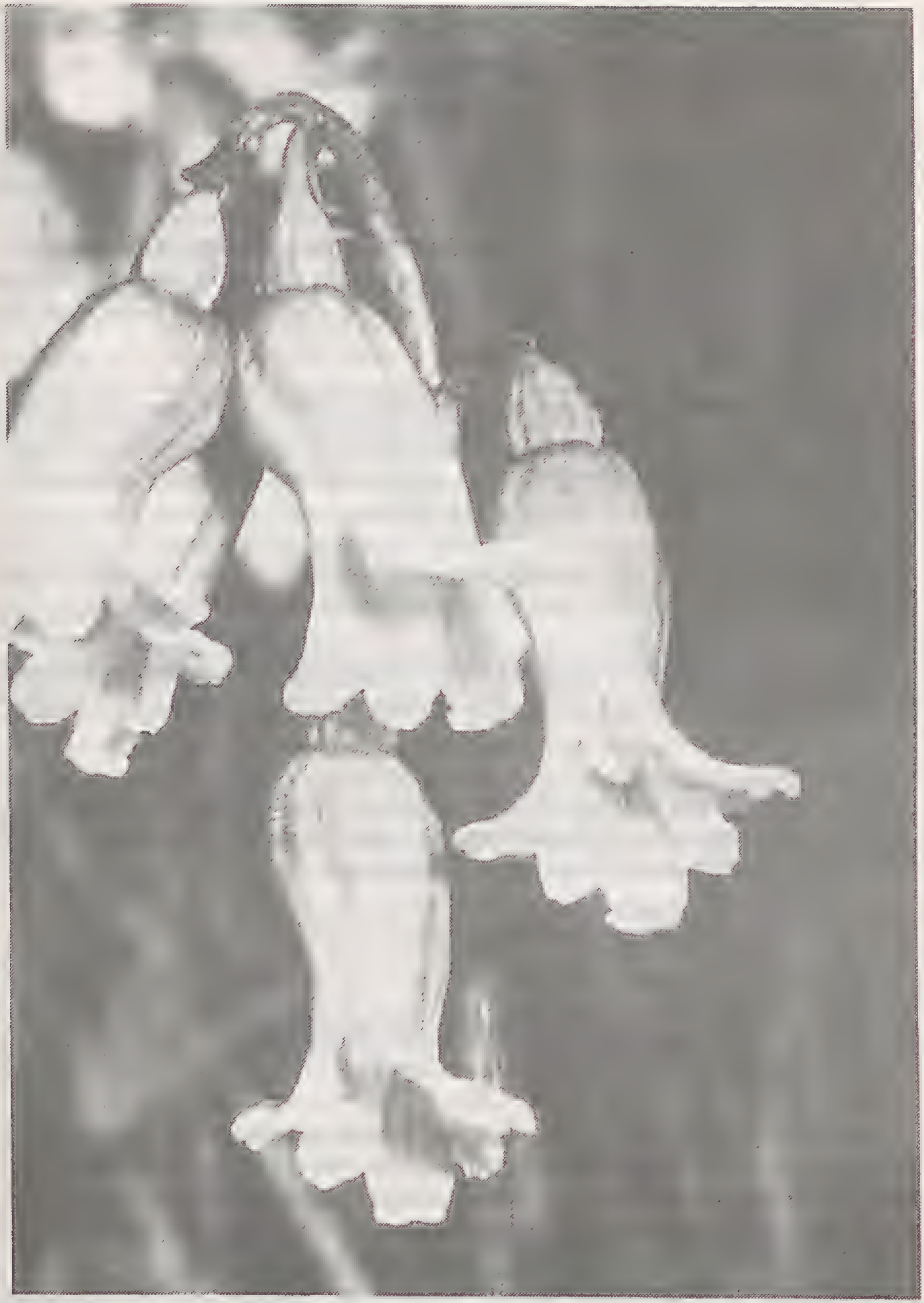
Frances Poole

The orchid *Gastrodia sesamoides* has two common names: the Potato Orchid, from the large very potato-like tuber, or Cinnamon Bells, from the spicy fragrance exuded on a warm day. A leafless saprophyte– which means that it lives on dead organic matter – this orchid has thick fleshy underground tubers. Without any leaves or rosettes, the dark brown stems are not easily spotted until the lovely bell-like flowers appear.

A golden brown on the outside and creamy to white inside, *Gastrodia sesamoides* is one of the easier orchids to identify, and is fairly widespread, favouring damp ground in the cooler areas: the Otways (Lake Elizabeth), or the Anglesea area, for example near the Proving Ground and Urquhart's Bluff. It flowers from September to February.

Frances Poole, 134 Fitzroy St., East Geelong, 3219.

Tuber of Cinnamon Bells



Cinnamon Bells *(Gastrodia sesamoides)*

Bird Highlights of a 2-day Trip to Mt. Cole early May, 1982

Ina McIntyre

The sight of 3 Painted Quail scurrying about on the dry shoulder of the forest road at the turn-off to the Middle picnic area.

The ignored the cars as we pulled up and watched them, noting the well-defined markings on their backs and the bright chestnut patches on their shoulders. Even when we got out of the cars they did not hurry away but gradually moved off into low scrub.

The early morning activity of a group of Black-chinned Honeyeaters in tall gum trees close to our motel in a bush-land setting just beyond Ararat.

Four of them obligingly sat for a considerable time on a bare branch, enabling us to have a perfect look at them.

The noisy activity of Crescent Honeyeaters in the tops of tall trees in a gully on the way into the Glut from the Elmhurst – Beaufort road.

The hundreds of White-fronted Chats which rose in clouds from the road-sides as we drove south from Lake Goldsmith on the Beaufort – Skipton road.

We also noted a number of Brown Falcons on this stretch of road, one dead by the roadside, which gave us the opportunity to have a close look at the rather beautfiul markings on the feathers.

Ina McIntyre, 383 Myers St., East Geelong, 3219.

Sugar Glider in church!

Father A. Eames

On Sunday 17 January 1982, my altar boy said there was a small possum resting in a pot of fishbone ferns, in church. When it was disturbed after Mass, I saw that it was a beautiful Sugar Glider *(Petaurus breviceps)*, delightful to watch as it jumped from chair to chair and ran over the tops.

Fr. A. Eames, St. John the Baptist Presbytery, Harding St., Winchelsea, 3241.

No Binoculars needed!

Jess and Arthur Collins

For several weeks we had been hearing in the street trees and in our garden the call of the Spotted Pardalote *(Pardalotus punctatus),* now and then being able to see the birds moving about the outer foliage and tree-tops, but the glimpses were brief.

On Friday (30th April, 1982) the call of an immature bird – "Peep, peep, peep" instead of "Chick-seedee" (which is our version of the adult call) was so loud and insistent that we hurried for our binoculars hoping for a closer viewing. To our astonishment, the bird was actually inside on our sittingroom floor. After hopping about for a few moments, it flew through the open garden door. Watching from the doorway, we saw it fly from the tree outside to flutter by a bedroom window, either seeking insects or just attracted by its reflection in the glass. Then it actually flew in the door again within a foot of our faces and settled in the seat of an armchair. We could see the greyish head and pale throat of the juvenile, but it had the orange shading to strong rust-red on the rump and the clear sharply white spots on the black wing.

We stook, hardly daring to breathe, while the bird pottered about inspecting the cushion, eventually hopping up to the top of the chair-back. After looking from that vantage-point through the window to the garden, it flew the other way, across the sitting-room into the hall at the front of the house, where it tried to get through the hall window, becoming agitated when it couldn't. We managed, without further alarming it, to open the front door, and very soon our delightful little visitor found its way to the garden and freedom.

The following day we saw what we think must have been the same bird, again flying from the tree to flutter by the window near the garden door. It was joined in the tree by a brilliantly coloured adult bird, which answered its "Peep, peep, peep" with the usual "Chick-seedee" call, and they flew off, one chasing the other. But which was the pursued and which the pursuer we couldn't see.

Jess and Arthur Collins, 9 Warwick St., Herne Hill, 3218.

Organ Pipes National Park

Report on our Club excursion on 21st March 1982, and notes on the geology and history of the area

Diana Primrose

The Organ Pipes National Park is a small section (85 hectares) of the Keilor Plains, 26km north-west of the centre of the city of Melbourne, on the Calder Highway, and is situated on Jackson's Creek, a tributary of the Maribyrnong River.

EXCURSION:

The two main aims of the excursion were to view the notable geological features of the park, and to inspect the restorative work carried out since its proclamation in 1972. 36 people braved the above 30° temperature to attend.

Leaving the Geelong Post Office at 0910 hours, our route took us firstly to Bacchus Marsh, via Anakie Road, passing the Lovely Banks Service Basin, the properties of "Coonil", "Jalna", and "Marathon", with views to our left of the increased clearing on the Rowsley Scarp, and to our right of the quarrying on the east face of the third Anakie hill. As we left Anakie, on our right we saw the remnants of a stand of yellow gums, once extensive but now largely cleared. Taking the Staughton Vale road we drove on through parched countryside with bare paddocks desperately awaiting rain. Turning toward Bacchus Marsh we had views of Mt. Blackwood, Mt. Bullengarook, and Mt. Macedon ahead. The Parwan Creek valley (to our left just before the railway viaduct near Rowsley Bank) is, or was, an area of classic erosion where the Soil Conservation Authority began its work after World War II.

In Bacchus Marsh we spent half an hour at Maddingley Park. Approximately 30 Musk Lorikeets were seen in the trees near the High School. At 1100 hours we continued on up Anthony's Cutting, turning left down Longforest Road. Here we paused to inspect the remnant of mallee scrub unusual to this area, with its Mallee eucalypts and cassinias including "Chinese Scrub" *(Cassinia arcuata).* Few birds were seen, but a Brown Thornbill *(Acanthiza pusilla),* a Brown-headed Honeyeater *(Melithreptus brevirostris),* and a Spotted Pardalote *(Pardalotus punctatus)* were recorded. We proceeded through Toolern Vale and Diggers Rest, on to the Calder Highway, and arrived at the Park at about 1200 hours. Members took their lunch in the welcome shade of the trees in the car park area.

At 1330 hours the Park Ranger, Mr. Jack Lyale, spoke to us on the origin of the Park and its development since 1972. He then guided us on a walking inspection of the area, its geological features, and the restorative work done. Our day concluded at 1630 hours when the Park officially closes. We greatly appreciated the time Mr. Lyale spent with us on what proved to be a very interesting and worthwhile excursion to a place many of us previously knew very little about. We could not help but be impressed by what has been achieved through the dedicated hard work of all concerned in the restoration of this area of land.

Our route home was via Exford, where some of us paused to view the "pillow lava" formations just left of the T junction near Exford weir.

BIRDS OBSERVED AT THE ORGAN PIPES NATIONAL PARK

Brown Goshawk *Accipiter fasciatus* 1
Brown Falcon *Falco berigora* 1
Dusky Moorhen *Gallinula tenebrosa* 2
Welcome Swallow *Hirundo neoxena* 2
Grey Fantail *Rhipidura fuliginosa* Common
Willie Wagtail *Rhipidura leucophrys* 1
Superb Fairy-wren *Malurus cyaneus* 20
Yellow-rumped Thornbill *Acanthiza chrysorrhoa* Few
Silvereye *Zosterops lateralis* 5
House Sparrow *Passer domesticus* 2
Red-browed Firetail *Emblema temporalis* Few
Australian Magpie *Gymnorhina tibicen* 6
Little Raven *Corvus mellori* 1

GEOLOGICAL HISTORY AND FEATURES OF THE PARK

The Keilor Plains are part of the world's third largest lava flow, which originated from the now extinct volcanoes near Sunbury to the north, about 1 million years ago.

Within the Organ Pipes National Park itself there are three main rock types: sedimentary rocks (Silurian sandstones about 400 million years old), volcanic rocks (quaternary (Pleistocene) igneous rocks (basalt and scoria) about 2 million years old), and alluvial deposits (quaternary (recent) alluvial deposits, found along the creek flats).

1. The sedimentary rocks:

Light, pale-coloured sandstones originally laid down under the sea, these rocks contain fossils of sea snails, sea worms, and graptolites. It was through this sedimentary fold rock that the ancient river valley was cut. Since then tectonic processes, warping and tilting, have occurred, and the sandstones have been covered with a layer of basalt. We observed an exposed area of these sandstones 200 metres downstream from the

"Organ Pipe" formation.

2. The volcanic rocks:

The basalt and scoria are dark grey and brown rocks formed from lava which flowed from the now extinct volcanoes to the north. The lava poured over the sedimentary rock of the old land surface, filling the original river valley and blanketing the landscape. Over the plains, the lava cooled and solidified quickly into rock basalt. These plains, now known as the Keilor Plains, formed good grazing country for the white settlers in the 1830's and played an important role in the early pastoral development of the Melbourne area. The most prominent geological features of the Organ Pipes National Park are formed from the volcanic rocks:

(a) The Organ Pipes: Lava flowed into the ancient river valley to a depth of possibly more than 70 metres. This great depth led to a very different cooling process to that which took place on the plains. A crust formed on the surface of the lava, insulating the interior mass and protecting it from external movement. With the combination of uniform lava composition, stability, and slow heat loss, "columns" of basalt developed. As cooling and solidification progressed, the basalt contracted causing tension in the rock mass. Vertical tension was relieved by the somewhat elastic molten rock beneath, but horizontal tension could not be relieved, and so the rock cracked. The rock usually cracked into six-sided patterns, but some up to eight sides are found. As the basalt continued to cool and harden, the cracks lengthened to form columns. These columns would remain hidden today but for the effect of new streams forming on the basalt plains. The present Jackson's Creek has cut a deep river valley through the basalt, at right angles to the ancient river valley, thus revealing the basalt columns now known as the "Organ Pipes."

The first written record of these basalt columns is a note on an undated survey map drawn around 1863. There appears to be no other recorded information until the early 1900's when parties from the Field Naturalists Club of Victoria had several excursions to the site.

(b) The Tesselated Pavement: Found 1 km upstream from the Organ Pipes, this geometrically checkered pavement is made up of basalt columns which have been eroded or "filed down" over thousands of years by the waters of Jackson's Creek.

(c) The Rosette Rock: Situated on the basalt wall on the north side of the creek, downstream from the Tesselated Pavement, is a radial array of basalt resembling the spokes of a wheel. Exactly how this was formed is uncertain. Our guide informed us that even better examples of "rosettes" have been found further upstream, as yet inaccessible to the public.

(d) The Scoria Cone: Within the Park itself, and actually the site of the present car park, is the remains of a small volcano, active at much the same time as the volcanoes to the north. The cone did not produce much lava, but ejected molten rock in a series of explosions, producing a particular type of basalt – scoria. Scoria is brownish in colour and filled with many air pockets caused by steam being trapped in the molten lava, the air pockets remaining after the steam had escaped. The scoria cone has been eroded and weathered and is no longer recognisable as a volcano, but now serves a very useful purpose as a car park and a viewing area to overlook the rest of the Park.

Quartz and quartzite gravels from the old river bed can be seen on the track halfway down from the car park to the Organ Pipes. These deposits of gravel under basalt are called "deep leads"; similar deposits in Ballarat were often mined for gold.

3. The alluvial deposits:

After the lava cooled and hardened, new streams began to form on the basalt plains, cutting through the basalt and the underlying bedrock. One of these streams is the present Jackson's Creek. The deposited alluvium along the creek provided fertile soils which were used for orchards and market gardens in this century.

HISTORY OF THE AREA

The first white settlers arrived on the Keilor Plains from Tasmania in 1835. Native vegetation at that time was open grassy plains, scattered she-oaks, wattles, yellow gums, hop bushes, and other native shrubs and wildflowers. River red gums, bottle brushes, and tea-tree grew along the water courses. Native animals included kangaroos, dingoes, tigercats, bandicoots, possums, gliders, platypuses, and many species of birds. With the coming of the white man, cattle and sheep were introduced, and dogs, cats, rabbits and foxes were brought to the area. These animals soon predominated over native fauna, and there was a progressive decline in the native vegetation. Many noxious weeds were introduced, including Boxthorn *(Lycium ferocissimum)* from South Africa (probably introduced as a hedge plant), artichoke thistle *(Cynara cardunculus)* from the Mediterranean region (probably an accidental introduction), and horehound *(Marrubium vulgare)* from Southern Europe (possibly introduced accidentally or perhaps as a medicinal plant). Cropping was carried out and fertilizers used extensively resulting in further destruction of native flora. The fertilizers gradually leached into Jackson's Creek creating excessive algal growth, which inhibited water flow. In recent years effluent from the domestic sewage lines from Sunbury, 15km upsteam of the Park, has added to the pollution. The land surrounding the Organ Pipes was originally privately owned; consequently access was limited and for many years knowledge of or interest in, the formation was restricted to local people and to a few others who had heard or read about them. In the 1950's the idea developed of obtaining the land surrounding the Organ Pipes as a public reserve. In 1970, 65 hectares of land including the Organ Pipes became the property of the State of Victoria through a gift from the estate of the last owner, Edward A. Green. In 1972 these 65 hectares (now increased to 85 hectares) were proclaimed a national park and came under the control of the National Parks Service.

RESTORATION AND PLANTING

When the Park was proclaimed in 1972 the picture was one of devastation – natural flora and fauna were virtually nonexistent, thistles and other noxious weeds covered the area, and rabbits abounded. An enormous amount of time, energy and enthusiasm from the National Parks Service and the "Friends of the Organ Pipes" (a group of the Victorian National Parks Association) has resulted in the Park as it is today – a credit to the effort of these people. Since 1972 there has been progressive clearing of noxious weeds and vermin, and extensive well-planned replanting of native trees, shrubs and grasses. We were most impressed with the plantings of Blackwood *(Acacia melanoxylon),* Lightwood *(Acacia implexa),* Black wattle *(Acacia mearnsii),* Silver wattle *(Acacia dealbata),* Drooping she-oak *(Casuarina stricta),* Wedge-leaf hop bush *(Dodonea cuneata)* and others. Many hundreds of trees and shrubs have been planted over the last 10 years, and many are now tall with dense foliage, giving the effect of a miniature forest. It is pleasing to note that the native River bottle-brush *(Callistemon palludosa)* and the Woolly tea-tree *(Leptospermum lanigerum)* have regenerated naturally along the banks of Jackson's Creek. River red gums *(Eucalyptus camaldulensis)* also grow along the creek. The native grasses, Kangaroo grass *(Themeda australis)* and Wallaby grass *(Danthonia* sp.) are however, proving more difficult to restore to the area. Experimental plantings are being done, but it is being found difficult to prevent the introduced species overtaking the native grasses. One native grass, known locally as "Blue grass" has happily returned, alone and unaided, in the last few months.

The work continues, and is far from complete. We are invited to picture the Park as it will look in 20 years time – tall swaying trees, the native vegetation restored, providing once again a suitable habitat for many native birds and animals, and a fitting complement to the Park's geological features.

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Diana Primrose, Wallington, 3221.

Colour-Dyed Waders

Brett Lane

In August and September, 1982, a team of nearly 60 people are participating in the Australasian Wader Studies Group North-west Australia Expedition. This month-long research expedition is centred in the Broome-Port Hedland area in northern Western Australia, where over 150,000 migratory waders spend the summer months. In order to facilitate study of their movements within Australia and on their homeward migration, it is planned to cannon-net waders and colour-dye them on the underparts with Picric Acid. This is a bright yellow dye which fades to orange after a week or so, and lasts up to four months. People visiting coastal areas or areas where waders are present, anywhere in Australia, are asked to watch for colour-dyed birds and report the details of any sightings to the addresses below. Date, place (latitude and longitude if possible), number and species of birds, size of flock and habitat should be noted. The colur dyeing involves all species of waders.

The Secretary,
Australian Bird Banding Scheme,
CSIRO Division of Wildlife Research,
P.O. Box 84,
Lyneham, 2602, A.C.T.
AUSTRALIA

OR

Australian Wader Studies Group,
C/o Royal Aust.Ornithologists Union,
21 Gladstone Street,
Moonee Ponds, 3039, Victoria.
AUSTRALIA

Brett A. Lane, Australasian Wader Studies Group, National Co-ordinator.

New Bird Hide at Angahook Forest Park

Margaret Cameron

A new hide, to permit observation of birds without unduly disturbing them, has been built by the Forests Commission near the Distillery Creek Picnic Area in the Angahook Forest Park. The local conservation organization, Angair, helped by providing $5000 for building materials. A path leads down from the picnic area to a boardwalk approximately 200 metres long, through the melaleucas out to the marshy area. The hide itself provides 8 viewing slits at different heights, and permits a 240° outlook over the marsh, the grassland beyond, and the surrounding trees – swamp gums, ironbarks, manna gums, and stringybarks.

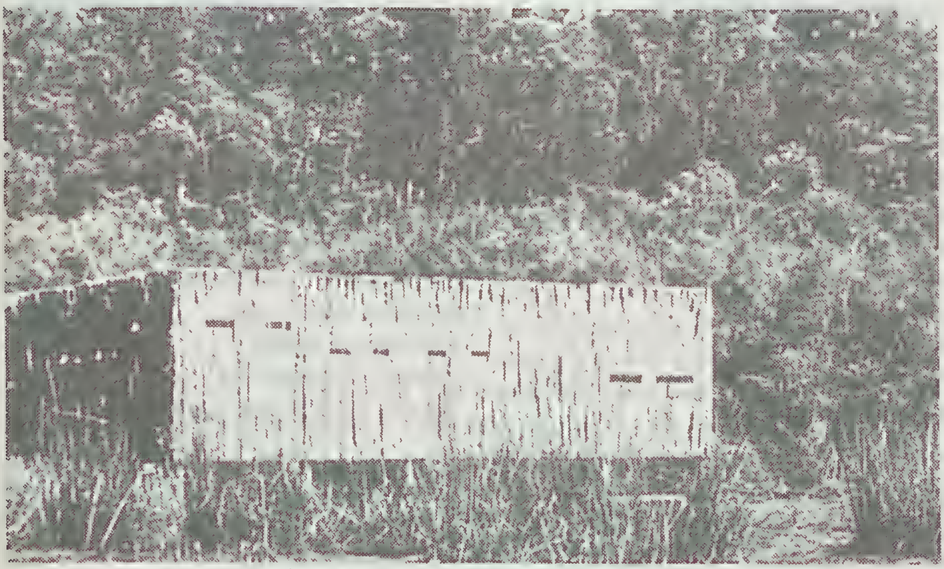
I was shown the hide by Miss Mary White on 21 st March; although it was a very hot day and the marsh was virtually dry we still saw many birds including a Pacific Heron, Sulphur-crested Cockatoos, Crimson Rosellas, a pair of Scarlet Robins, Eastern Yellow Robins, Grey Shrike-thrushes (2 feeding out in the open), many Grey Fantails, Buff-rumped Thornbills, Yellow-faced, White-eared, White-naped, and New Holland Honeyeaters; Eastern Spinebills, and Dusky Woodswallows– apparently a family party, as there were 2 adults and several young birds. We heard but did not see a Rufous Bristlebird. The highlight of our brief visit was a Rose Robin.

Angair have compiled the following lists of birds and plants along the Bird Hide track and in the area of the Hide itself. Additional sightings should be reported, especially when rainier weather gives the marsh a chance to fill with water. The Secretary of Angair is Miss Mary White, 4 McMillan St., Anglesea, 3230.

Birds recorded in Bird Hide area (to 31st March, 1982)

Pacific Heron	*Ardea pacifica*
White-faced Heron	*Ardea novaehollandiae*
Rufous Night Heron	*Nycticorax caledonicus*
Pacific Black Duck	*Anas superciliosa*
Purple Swamphen	*Porphyrio porphyrio*
Masked Lapwing	*Vanellus miles*
Sulphur-crested Cockatoo	*Cacatua galerita*
Crimson Rosella	*Platycercus elegans*
Laughing Kookaburra	*Dacelo novaeguineae*
Welcome Swallow	*Hirundo neoxena*

White's Thrush	*Zoothera dauma*
Blackbird	*Turdus merula*
Rose Robin	*Petroica rosea*
Scarlet Robin	*Petroica multicolor*
Eastern Yellow Robin	*Eopsaltria australis*
Grey Shrike-thrush	*Colluricincla harmonica*
Grey Fantail	*Rhipidura fuliginosa*
Clamorous Reed-Warbler	*Acrocephalus stentoreus*
Superb Fairy-wren	*Malurus cyaneus*
Rufous Bristlebird	*Dasyornis broadbenti*
Brown Thornbill	*Acanthiza pusilla*
Buff-rumped Thornbill	*Acanthiza reguloides*
White-throated Treecreeper	*Climacteris leucophaea*
Red Wattlebird	*Anthochaera carunculata*
Yellow-faced Honeyeater	*Lichenostomus chrysops*
White-eared Honeyeater	*Lichenostomus leucotis*
White-naped Honeyeater	*Melithreptus lunatus*
New Holland Honeyeater	*Phylidonyris novaehollandiae*
Eastern Spinebill	*Acanthorhynchus tenuirostris*
Spotted Pardalote	*Pardalotus punctatus*
Dusky Woodswallow	*Artamus cyanopterus*
Australian Magpie	*Gymnorhina tibicen*
Pied Currawong	*Strepera graculina*



Bird Hide overlooking Swamp

Plants along Bird Hide Track (to 31st March, 1982)

Coral Fern	*Gleichenia sp.*
Rough Tree-fern	*Cyathea australia*
Austral Bracken	*Pteridium esculentum*
Hard Water-fern	*Blechnum procerum*
Water Ribbons	*Triglochin procera*
Striated Arrow-grass	*Triglochin striata*
Swamp Club-rush	*Scirpus inundatus*
Tall Spike-rush	*Eleocharis sphacelata*
Square Twig-rush	*Baumea tetragona*
Red-fruit Saw-sedge	*Gahnia sieberiana*
Tall Sword-sedge	*Lepidosperma elatius*
Rush	*Juncus sp.*
Hyacinth Orchid	*Dipodium punctatum*
Australian Clematis	*Clematis aristata*
Sweet Bursaria	*Bursaria spinosa*
Prickly Moses	*Acacia verticillata*
Varnish Wattle	*Acacia verniciflua*
Blackwood	*Acacia melanoxylon*
Dusty Miller	*Spyridium parvifolium*
Swamp Gum	*Eucalyptus ovata*
Red Ironbark	*Eucalyptus sideroxylon*
Prickly Tea-tree	*Leptospermum juniperinum*
Scented Paperbark	*Melaleuca squarrosa*
Water-milfoil	*Myriophyllum propinquum*
Brookweed	*Samolus repens*
Running Marshflower	*Villarsia reniformis*
Kidney-weed	*Dichondra repens*
Austral Brooklime	*Gratiola latifolia*
Christmas Bush	*Prostanthera lasianthos*
Wild Currant	*Coprosma quadrifida*
Angled Lobelia	*Lobelia alata*
Hop Goodenia	*Goodenia ovata*
Musk Daisy-bush	*Olearia argophylla*
Sphagnum Moss	*Sphagnum cymbifolioides*

M.A. Cameron, 4 Connor St., East Geelong, 3219.

Boardwalk to Hide through Melaleucas

HOUR COUNT No. 40

Boort, Victoria

Roy Wheeler

Boort in the northern country, 253 kilometres from Melbourne via the Calder Highway, was founded in 1871. Boort is an aboriginal name meaning Place of Smoke. In 1845 there were several hundred aboriginals of the Jujowering tribe in the district, but by 1893 only 65 remained.

Major Mitchell in his famous Australia Felix journey went through the district in 1836, and it was near here that he had trouble with two gins in the party, according to the diary of Mr. Stapylton dated July 2, 1836. Stapylton was second in charge of the party and was an assistant surveyor, and he loathed the blacks, despised the convicts, and detested Mitchell. Boort

Station was taken up in the late 1830's after Mitchell had passed through , and George Sutie was the first settler in the district in 1851, a drought year. Sheep were the first mainstay of the district, but later wheat was grown on a large scale. The first business place in the town was the Commercial Hotel. The local paper the *Boort Standard* was started in 1880, and the railway reached there in 1883. The Boort Lake on which the town is situated was filled from the Loddon River in 1850. Since that time it has been filled and dried out again a number of times but it is now kept at a high level by the State Rivers and Water Supply. When filled it is a haven for water-fowl. There are two lakes: the original one, and a smaller one used for aquatic sports. The population of Boort is about 850.

This was my first visit to Boort, and my grateful thanks to Fred and Margaret Watts of Inglewood for taking me there, and to Fred's sister Mrs. Dot Rees, who showed me *Smoke from the Hill* by Fae Stevens from which I got this early history. I did an hour count from the south side of the lake, and herewith are the details.

BOORT, Vic., Boort Lake, on the edge of the township. January 19, 1980.
Cloudy but fine with strong south wind. 3 to 4 p.m.
One observer: Roy Wheeler.

Birds in order of sighting: Reed-warbler, 9; Black Swan, 110; Coot, 610; Welcome Swallow, 28; Pelican, 130; Marsh Tern, 50; Little Pied Cormorant, 10; White-headed Stilt, 16; Grey Teal, 8; Silver Gull, 45; Little Grebe, 8; Hoary-headed Grebe, 12; White-plumed Honeyeater, 3; Magpie-lark, 8; House Sparrow, 6; White-necked Heron, 1; Starling, 24; Goldfinch, 1; Black Duck, 10; Willie Wagtail, 1; Hardhead, 1; Masked Lapwing (Spurwinged Plover), 6; Crested Grebe, 1; Black Cormorant, 4; Blue-winged Shoveler, 4; White-breasted Wood-swallow, 1; Red-rumped Parrot, 1; Galah, 3.

Total 28 species and 1111 individuals.

Roy Wheeler, 59a Upton Road, Windsor, Vic. 3181.

OF VICTORIA

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Editorial

Seagrasses – the subject of Elizabeth Kerr's article in this issue – are a new topic for the *Geelong Naturalist*, but we see them every time we go to the beach. Until I read her paper, I had not realised that seagrasses had flowers with pollen, just like plants which grow in the air. In fact I learnt something new from every item in this issue. The excitement of such new discoveries is one of the best things about our Club.

Graham Pyke, having made (and shared) the surprising discovery that objective data do not support the widespread belief that honeyeaters move above from place to place according to where their nectar sources are blooming, invites us to participate in a project to help work out why they *do* move about. Regular visits to a suitable area (Grasstree Park? The Ocean Grove Nature Reserve?), enjoying both the flowers and the birds, could contribute to solving one of the many remaining mysteries of Australian natural history.

Margaret Cameron

The Distribution of Seagrasses in Swan Bay

Elizabeth Kerr

Introduction

Seagrasses were first described about 150 years ago (den Hartog, 1970). They are a group of generally grass-like, salt tolerant angiosperms (flowering plants) found growing in the sea, estuaries and coastal lagoons. In his monograph, *The seagrasses of the world* (1970), den Hartog described 49 species contained in 12 genera; since then, at least four new species have been described.

Arber (1920) defined seagrasses as (a) being adapted to life in a saline medium, (b) able to grow when completely submerged, (c) having an anchoring system sufficiently developed to withstand tide and waves, and (d) having a capacity for hydrophilous (underwater) pollination. Den Hartog (1970) considers another factor important – competitive capacity – and he excluded the genera *Ruppia* and *Lepilaena* from his monograph, because in a marine environment seagrasses are likely to grow more vigorously and outcompete them. Nevertheless, *Lepilaena cylindrocarpa* and *Ruppia* sp., both present in Swan Bay, will be referred to as "seagrasses" in this paper.

There may be a tendency for the terms "seagrass" and "seaweed" to be confused, but these are two quite distinct groups. Seagrasses are all flowering plants, with roots and rhizomes and a highly developed vascular system. They are always attached to the substrate (seabed) and may absorb nutrients through both their roots and leaves (McRoy & Barsdate, 1970). Seaweeds or algae are free-floating and do not have roots, rhizomes or flowers. Light requirements limit the distribution of seagrasses to near-coastal areas – their upper limit of growth is the intertidal zone and the maximum recorded depth (for *Halophila stipulacea)* is 147 m in the clear waters of the Mediterranean (Lipkin, 1975).

The seagrasses of Swan Bay

As part of an environmental survey of the whole area, the aquatic grasses of Swan Bay were mapped and their individual biomasses estimated. This paper deals with the mapping component of this project, which took place between July and December, 1978.

Five species of aquatic grasses were found — three species of seagrasses *sensu stricto* (den Hartog, 1970) and two species of aquatic plants which have a facultative ability to grow in saline water (they will grow in water ranging from hypersaline to brackish to fresh water or in conditions of unstable salinity). The seagrasses are *Zostera muelleri* Irmisch ex Aschers., *Heterozostera tasmanica* (Martens ex Aschers.) den Hartog and *Halophila ovalis* (R. Br.) Hook f.; the other aquatic grasses are *Lepilaena cylindrocarpa* (Koernicke ex Walp.) Benth. and *Ruppia* sp.

Ecological significance of seagrasses

(1) Seagrasses act to stabilize the substrate by binding the sediments together with their roots; at the same time, their leaves slow local currents so that suspended sand tends to settle out of the water into the seagrass bed. The substrate beneath a vigorously growing seagrass bed may increase in height over a period of time and living roots may extend as deeply as 0.3 m below the sediment surface (Cambridge, 1975), however, if sand accumulates too quickly, the seagrass will become buried at a faster rate than it can grow upwards and may be killed. Some species of seagrass are incapable of stabilizing a shifting substrate and depend on pioneer species to become established and create a suitable environment for them. If seagrass beds are destroyed by boats, wading or removal of grass, subsequent erosion of the seabed may make natural re-establishment virtually impossible (Zieman, 1976).

(2) Seagrasses produce a large amount of organic material in the form of leaves, roots and rhizomes and their leaves support numbers of epiphytes (smaller organisms, usually small algae, which live on the leaves but are nutritionally independent). Some species of epiphytes can survive on seagrass leaves only. A few organisms utilize the material produced by feeding directly on the leaves and epiphytes, but seagrasses play their most important role as contributors of detritus and bacteria to the food chain (Fenchel, 1970).

(3) Seagrasses are able to recover nutrients which might otherwise be trapped in the sediments because of their ability to absorb nutrients through both their roots and leaves. Nutrients may be absorbed by the roots, recycled within the plant and become available for re-use within the system (McRoy & Barsdate, 1970).

(4) Seagrasses are believed to be breeding grounds for fish (although this has not been proved), as well as providing protection from predators for young fish and other small organisms.

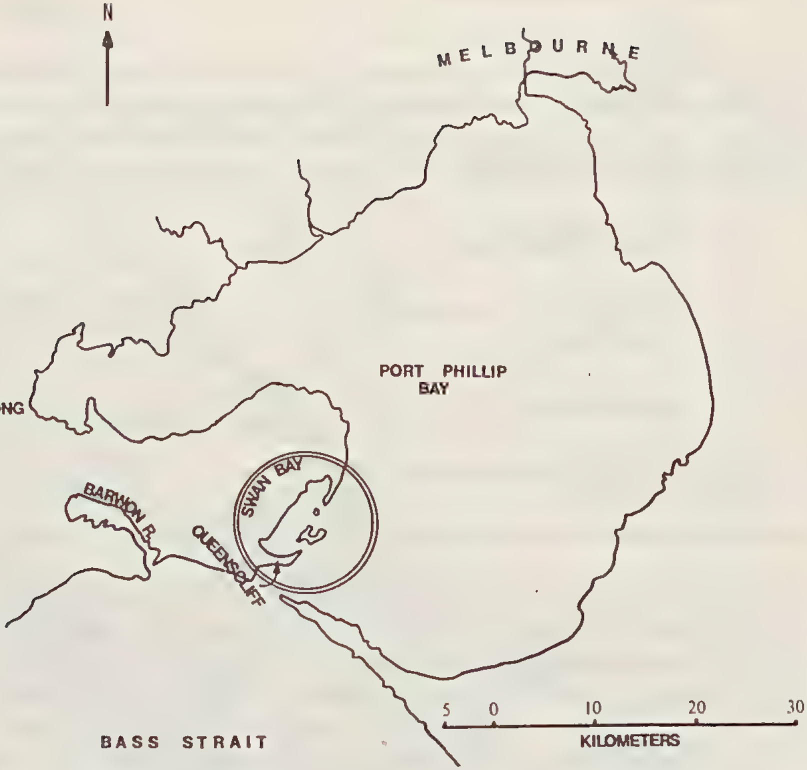

FIGURE 1. The location of Swan Bay.

Study area

Swan Bay is about 30km from Geelong (Figure 1) and is an embayment on the western side of Port Phillip Bay, separated from it by a series of islands, spits and sandbanks. There are two navigable channels, Fishermen's Creek in the south near Queenscliff, and a northern channel, which lies between Duck Island and Edwards Point. The southern end of Swan Bay has extensive areas of sandbanks which are exposed at low tide and are well-known as bird feeding grounds. It is a relatively sheltered environment. The species of seagrasses found growing here are not found on the open coast, as they are unable to cope with strong wave action.

Yarram Creek is a permanent watercourse at the southern end of the Bay. Apart from this, there is little fresh water input into the Bay, except from ephemeral watercourses after heavy rain.

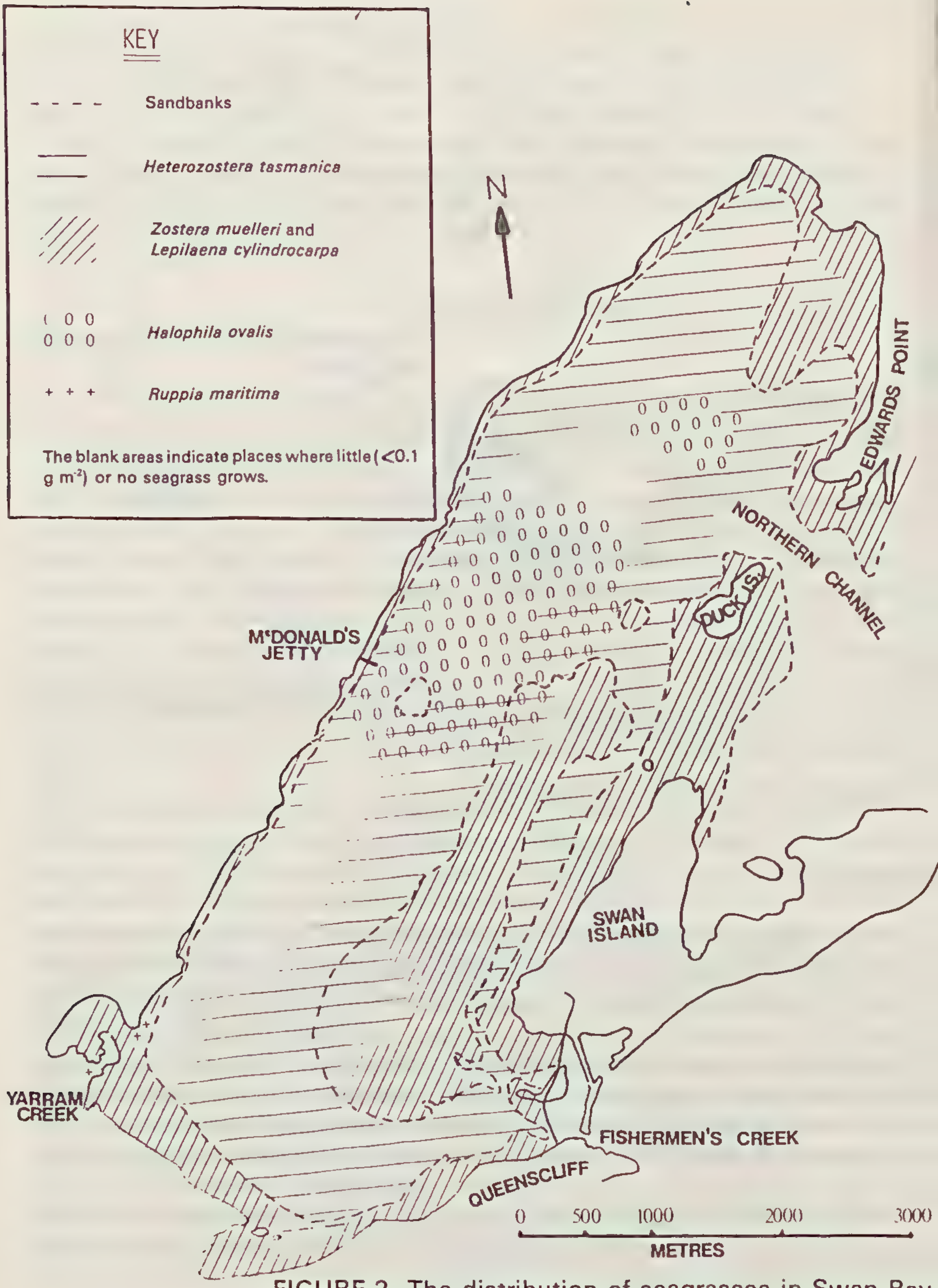
KEY
Sandbanks
Heterozostera tasmanica
Zostera muelleri and *Lepilaena cylindrocarpa*
Halophila ovalis
Ruppia maritima
The blank areas indicate places where little (<0.1 g m^{-2}) or no seagrass grows.
N
EDWARDS POINT
NORTHERN CHANNEL
DUCK IS.
M^cDONALD'S JETTY
SWAN ISLAND
YARRAM CREEK
FISHERMEN'S CREEK
QUEENSCLIFF
0
500
1000
2000
3000
METRES

FIGURE 2. The distribution of seagrasses in Swan Bay.

Method of sampling

The mapping was carried out by sampling systematically from 50 randomly selected sites in Swan Bay. At each site, 10 random samples were collected; each of these was sorted into species, and dry weights ascertained to give an indication of the relative biomass of each species.

Results

Figure 2 shows the distribution of seagrasses in Swan Bay.

Description and ecology of the seagrasses

1. Zostera muelleri

Distribution

The genus, *Zostera,* has a world-wide distribution with three representatives in Australian waters—*Z. muelleri, Z. mucronata* and *Z. capricorni. Z. muelleri* is confined to the southern coastline of Australia and ranges from Adelaide at its western limit to Sussex Inlet, on the south coast of New South Wales, and Tasmania (Aston, 1977; Jacobs & Williams, 1980). *Z. mucronata* grows on the south-west coast of Western Australia and in Spencer Gulf and near Adelaide, South Australia (Aston, 1977). *Z. capricorni* is recorded from the coasts of Queensland and New South Wales, south into Victoria to Mallacoota, with one record from Kangaroo Island, South Australia (Aston, 1977; Jacobs & Williams, 1980). It is uncommon to find two of these species growing together.

Description

In the field, the Australian species of *Zostera* may be distinguished by leaf tip shape and the number of main veins in the leaf, although these factors should be considered on a population, rather than an individual, basis (Jacobs & Williams, 1980), because there may be variation from plant to plant within the species. It is necessary to look at several plants to be sure.

Z. muelleri has a notched leaf tip with three main leaf veins and is the only species of *Zostera* found in Swan Bay (Figures 3 and 4); *Z. mucronata* has three main leaf veins and a leaf tip which varies from truncate (cut off) to 3-toothed, the central "tooth" corresponding to the mid-vein; *Z. capricorni* has a rounded-truncate leaf tip with 3-5 main veins (Aston, 1977).

Ecology

In Swan Bay, *Z. muelleri* grows in the intertidal zone above the zone of *Heterozostera tasmanica.* In this situation it may be exposed to the air at low tide for periods of up to four to five hours. Its minimum depth of growth is governed by the amount of exposure it can stand and its maximum depth of growth is probably related to its competitive interaction with *H. tasmanica.* In other localities, where *Z. muelleri* grows alone, it will extend its range into much deeper water (Ducker *et al.,* 1977; L. Atkins, personal communication); in these situations its growth is likely to be linked to the turbidity and the amount of available light.

Z. muelleri is considered a euryhaline species (den Hartog, 1970) – it can grow in a wide range of salinities. Other species of *Zostera* are reported to grow in salinities ranging from 3 p.p.t. to 40 p.p.t. (sea water is 35 parts per thousand) (Harris *et al.,* 1980; Phillips, 1969). In Swan Bay, *Z. muelleri* grows in salinities close to those of sea water and in Yarram Creek it grows upstream to a point where the salinity is 8.5 p.p.t.

Because it grows in the shallows in Swan Bay, *Z. muelleri* experiences a temperature range of about 4 °C to 40 °C. The reported temperature range for the related *Z. marina* is 0 °C to 40 °C, although its optimum range is reported as 5 °C to 27 °C and its flowers are produced only within the range of 15 °C to 20 °C (Phillips, 1969). One of the factors limiting the distribution of *Z. muelleri* to the southern coast of Australia is probably its sensitivity to prolonged high temperatures.

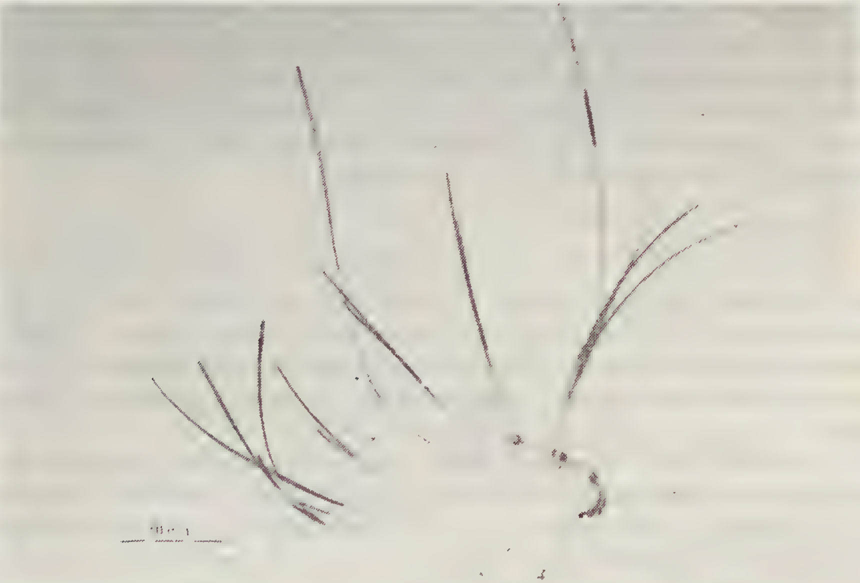

FIGURE 3. *Zostera muelleri,* showing roots, rhizomes and leaves.

II. *Heterozostera tasmanica*

Distribution

H. tasmanica is the only member of the genus *Heterozostera.* It grows along the southern Australian coastline, including Tasmania, from Western Australia (near Geraldton) to Corner Inlet, Victoria, with one isolated record from Jervis Bay, New South Wales (Aston, 1977; Jacobs & Williams, 1980). It has also been recorded from the western coast of South America (Aston, 1977; Phillips, personal communication).

Description

Until recently (den Hartog, 1970), *H. tasmanica* was classified as *Zostera tasmanica* and in some respects it resembles *Z. muelleri. H. tasmanica* has a notched leaf tip, so this character cannot be used to distinguish it from *Z. muelleri* (Figure 4). Both species form erect flowering stems, but only *H. tasmanica* produces erect non-flowering stems (Figure 5). If these are present, the field identification of *H. tasmanica* is easy, but they do not invariably grow and, if they do grow, may be detached during autumn or winter. In these circumstances, *Z. muelleri* and *H. tasmanica* look alike.

The surest way to distinguish between the two species is by examination of the rhizome in cross-section. *Z. muelleri* has two cortical vascular bundles; *H. tasmanica* always has more than two (Figure 6).

Ecology

H. tasmanica is the dominant species and forms extensive underwater meadows in the more sheltered sections of Swan Bay. It was collected from 90% of the sites sampled.

At its upper limit of growth, *H. tasmanica* is intermixed with *Z. muelleri* and may be exposed to the air at low tide. It seems less able to withstand long periods of exposure than *Z. muelleri* and Bulthuis (1977) showed that prolonged exposure to the air at high temperatures caused extensive leaf death.

At its lower limit of growth, *H. tasmanica* is restricted by light availability and needs at least 5% of surface light to survive (Bulthuis, 1981). Den Hartog (1970) reports that the presence of other species of seagrasses (e.g. *Posidonia* or *Amphibolis*) may restrict the distribution of *H. tasmanica* to a belt around the low water mark. These grasses do not grow in Swan Bay and the factors limiting *H. tasmanica*'s distribution there appear to be depth and turbidity (both of which reduce light) and the speed of the current in the channels.

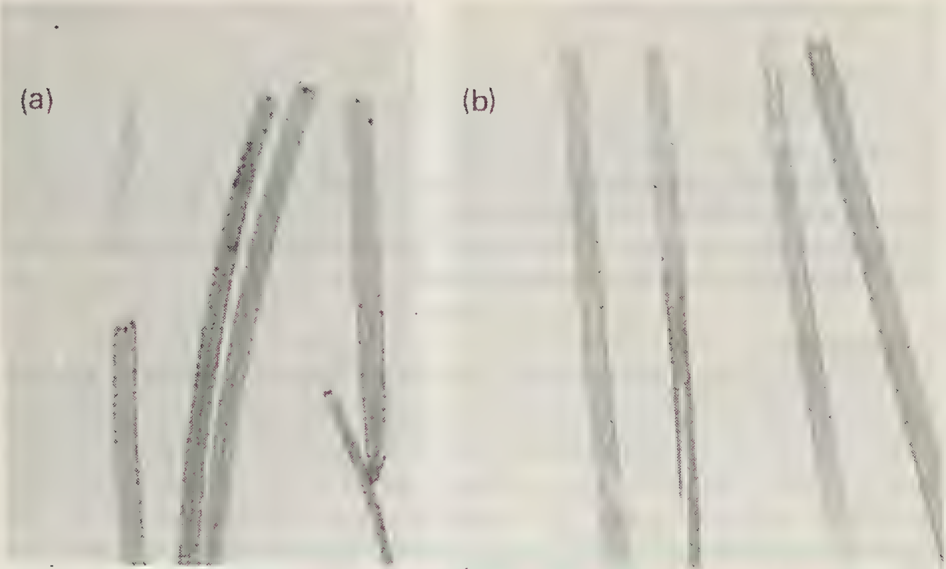

FIGURE 4. The notched leaf tips of (a) *Zostera muelleri* and (b) *Heterozostera tasmanica.*

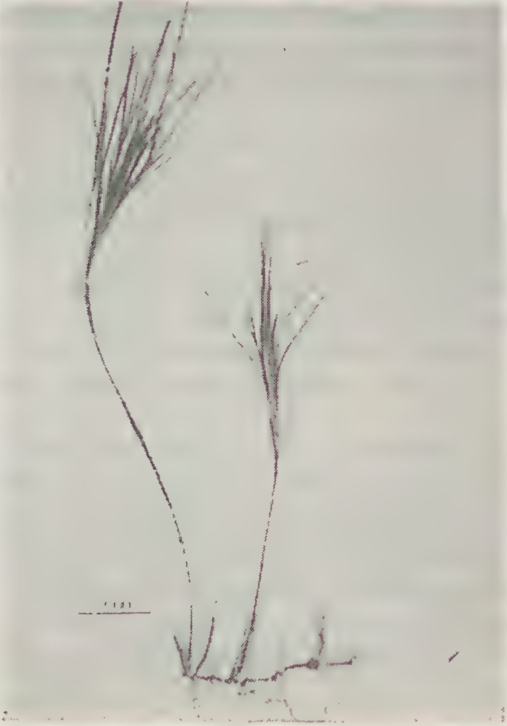

FIGURE 5. *Heterozostera tasmanica* showing roots, rhizomes and erect non-flowering stems. The stems may be shed in autumn and winter.

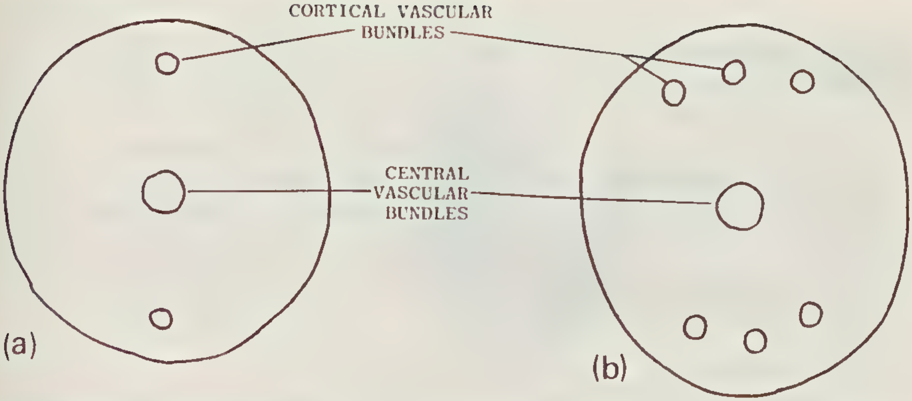

FIGURE 6. The arrangement of vascular bundles in (a) *Zostera muelleri* and (b) *Heterozostera tasmanica.*

III. *Halophila ovalis*

Distribution

This species occurs around most of the Australian coastline and is widespread in the Pacific and Indian Oceans (Aston, 1977). Its presence in Victoria has been recorded from Port Phillip Bay, Somers and Wilson's Promontory (Aston, 1977).

Description

The leaves of members of the genus, *Halophila,* tend not to be grass-like and *H. ovalis* is a small delicate plant, distinctive for its oval leaves, which have 10-25 pairs of cross veins diverging from the midrib at an angle of 45°-60° (Aston 1977) (Figure 7).

Ecology

Members of the genus, *Halophila,* are known for their tolerance of low light conditions. They are small plants and do not compete successfully with other species in optimum light conditions, because they do not grow as vigorously. In an experiment carried out in Corio Bay, Bulthuis (1981) placed screens over mixed beds of *H. tasmanica* and *H. ovalis* to lower light levels and he observed that *H. ovalis* continued to grow after *H. tasmanica* had died.

H. ovalis is also known for its ability to cope with a shifting substrate, although it is not capable of stabilizing the bottom sediments (Cambridge, 1975). *H. ovalis* has been seen growing in Swan Bay with only the tips of the leaves protruding above the surface of the substrate.

H. ovalis grows mainly in the north-west section of Swan Bay and forms monospecific stands in areas where *H. tasmanica* is not dominant. These areas tend to be of high turbidity and apparently unstable substrate.

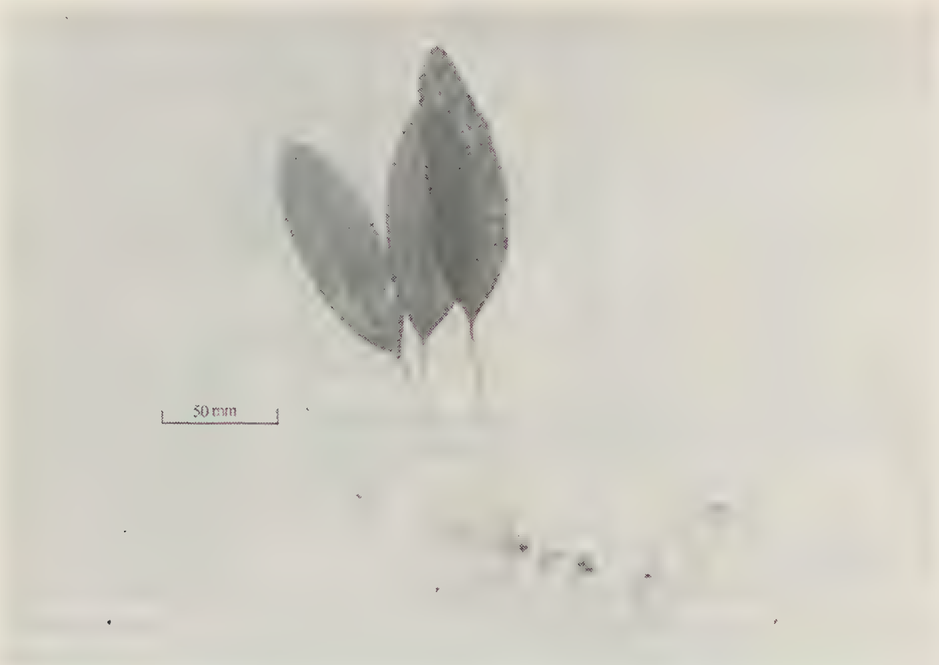

FIGURE 7. *Halophila ovalis* showing the distinctive oval leaf shape.

IV. *Lepilaena cylindrocarpa*

Distribution

The genus, *Lepilaena,* is confined to Australia and has four representatives – *L. bilocularis, L. australis, L. preissii* and *L. cylindrocarpa.* These species are generally found in inland waters, but, in Victoria, both *L. preissii* and *L. cylindrocarpa* are recorded from the coast. These two species may easily be confused with each other.

Description

L. cylindrocarpa (Figure 8) is much-branched and has many fine leaves, which taper at the apex. It is distinguished from *L. preissii* by floral characters such as length of the pedicel, size and shape of the stigma and shape of the fruiting ovary. It is suggested that reference be made to Aston (1977) for further elucidation of the differences between these two species.

In Swan Bay itself, *L. cylindrocarpa* grows as a perennial and the branching is pronounced. Around the perimeter of Swan Bay, it grows as an annual in ephemeral pools (Figure 9) and the stems are longer and the branching less apparent.

Ecology

In Swan Bay, *L. cylindrocarpa* and *Z. muelleri* commonly grow together in mixed stands in the intertidal zone, although *Z. muelleri* is the dominant species. *L. cylindrocarpa* flowers for most of the year, although few seedlings have been found in the Bay.

In the pools at Edwards Point, McDonald's Jetty and Yarram Creek, *L. cylindrocarpa* grows in conditions of fluctuating temperature and salinity. Seedlings usually appear in late June or early July and flowering and seed set is completed by October or November, before the pools dry out.

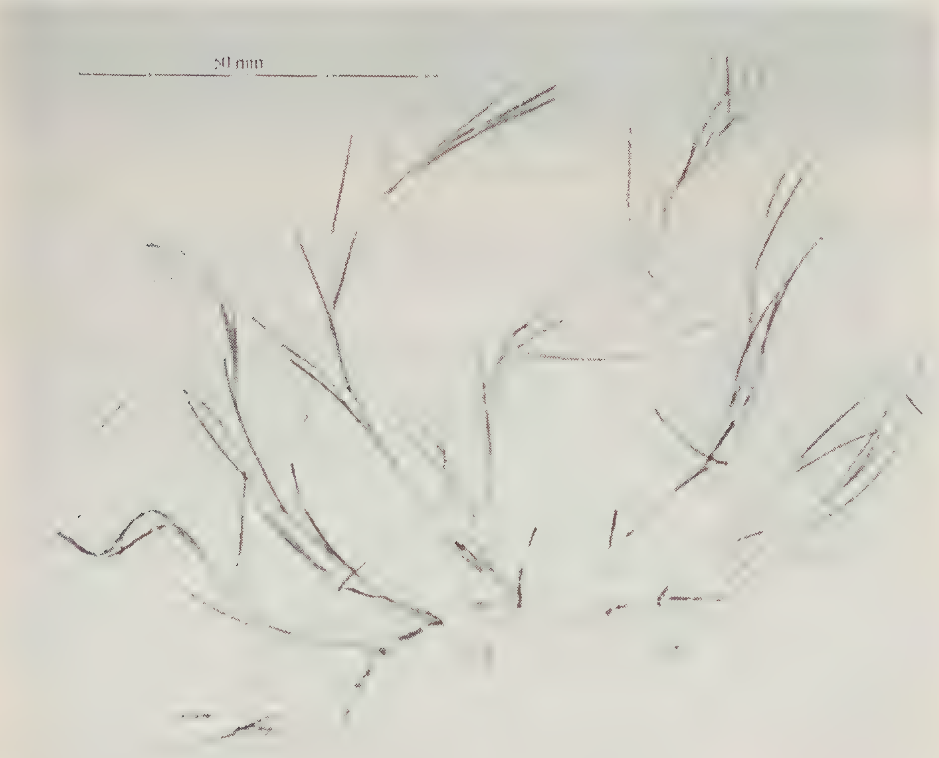

FIGURE 8. *Lepilaena cylindrocarpa* showing the branching leaves and delicate appearance.

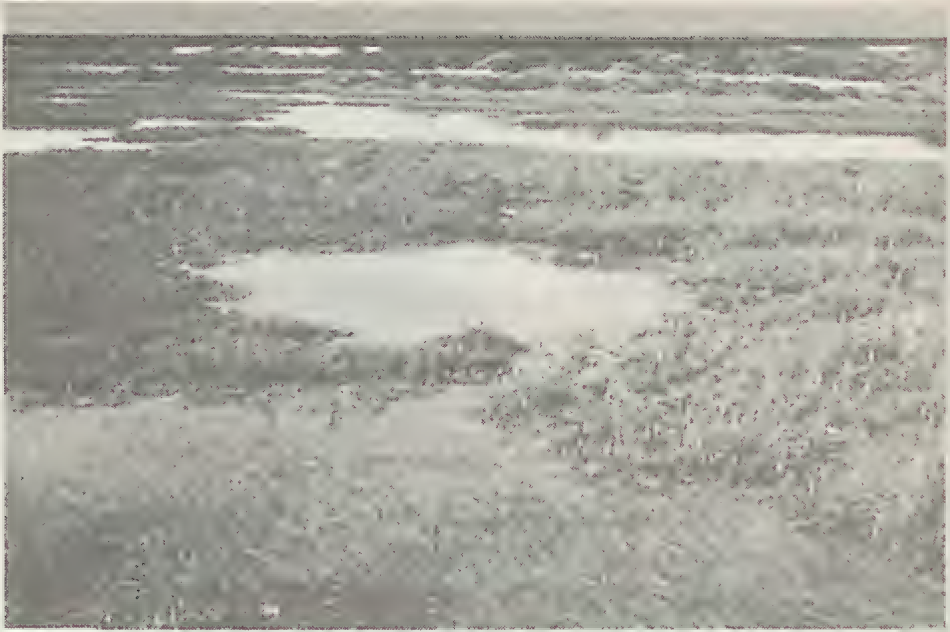

FIGURE 9. *Lepilaena cylindrocarpa* growing in one of the ephemeral pools on the perimeter of Swan Bay.

V. *Ruppia* sp.

Aston (1977) has retained the concept of grouping all forms of *Ruppia* as one species, *R. maritima,* but she comments on the necessity for a revision of this genus. Jacobs and Brock have recently undertaken a revision of *Ruppia* in Australia, but this is not yet published (Jacobs, personal communication).

It is likely that the species found in Swan Bay is *R. tuberosa,* but this has not yet been confirmed and it is referred to as *Ruppia* sp. in this paper.

Distribution

Ruppia is a cosmopolitan species and in Australia *"R. maritima"* occurs in both inland and coastal areas. *R. tuberosa* has been recorded only from Shark Bay, Western Australia (David & Tomlinson, 1974), and from south-east South Australia (Brock, 1982). When the taxonomy of this genus is clarified, many of the specimens formerly identified as *R. maritima* will no doubt be re-evaluated.

Description

Ruppia has long narrow leaves with distinctive flowers on spirally-coiled peduncles (flower stalks). Each inflorescence has two flowers, each with two conspicuous anthers; after pollen is shed the carpels are more apparent (Figure 10).

Ecology

Ruppia is noted for its ability to grow in waters of varying salinity. It may grow in fresh water (Bourn, 1935; Aston, 1977) and *R. tuberosa* has been recorded in pools of salinities ranging from 92 p.p.t. to 132 p.p.t. (nearly four times the salinity of sea water); in this situation the plant was growing in all stages of maturity from seedlings to mature, flowering specimens (Davis & Tomlinson, 1974). *Ruppia* will even grow in water where the predominant salt is not sodium chloride (den Hartog & Segal, 1964; Verhoeven, 1979). In Swan Bay, *Ruppia* grows in and near Yarram Creek, an area which has variable salinity and some estuarine characteristics (Denning, personal communication).

Acknowledgements

I should like to acknowledge with thanks the help and advice given by Dr. Stan Strother, Mr. Henry Hudson and Mr. Alan Parish; the assistance given with sampling by Neal Denning, members of the technical staff at Deakin University and the Geelong Sub-Aqua Club; and the assistance given with the production of the photographs by Peter Wilson and Russell Sharp of the Media Department at Deakin University. Finance was provided by the Borough of Queenscliffe Council, the Shire of Bellarine, and the Queenscliff Progress Association.

Summary

Seagrass samples were collected from 50 different sites in Swan Bay and the data obtained was used to compile a map of the seagrass distribution. An attempt has been made to explain the mode of distribution in the light of what is known about the ecological requirements of each species.

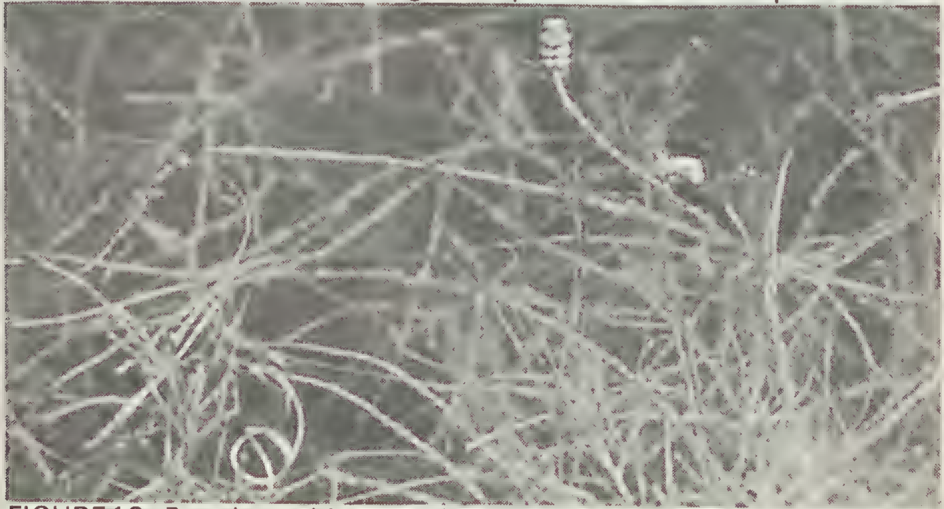

FIGURE 10. *Ruppia maritima* growing in Yarram Creek. The flower is shown and the spirally-coiled peduncles and two anthers per flower can be seen.

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Elizabeth Kerr, 20 Lloyd St., Belmont 3216.

Weebills in Geelong

Craig Morley

On 15 March 1982, at South Barwon Recreation Reserve, while I was supervising a school cricket team, I frequently heard a bird call which I recognized as that of the Weebill *Smicrornis brevirostris.* I returned to the Reserve at 1700 hrs, equipped with binoculars, and found two Weebills feeding in the shrubs and saplings *(Acacia, Melaleuca,* and *Eucalyptus spp)* at the southern boundary of the Reserve. The birds were heard again on 16 March. There may have been 3 or 4 birds as the frequency of their clear far-carrying calls gave the impression that more than 2 birds were present.

Weebills are generally considered to be birds of drier coastal forests and woodlands, to sparse scrubs and vegetation along watercourses inland (Pizzey). In *The Birds of Victoria and where to find them,* W. Roy Wheeler does not list the Weebill for Geelong or the Bellarine Peninsula. There is a small colony of Weebills at the You Yangs (approx. 30km. north of Geelong). The species is occasionally noted in the Brisbane Ranges (approx. 40km northwest of Geelong) and Wheeler lists it for the Angahook Forest Park (coastal forest 40km. southwest of Geelong).

In the context of the available literature and my prior experience of the Weebill, this a rare sighting of a bird which I would normally associate with inland districts such as the Grampians, Bendigo, Hattah Lakes or Wyperfeld, where this species is a common resident.

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Pizzey, G. (1980) *A Field Guide to the Birds of Australia.* Sydney, Collins.
Wheeler, W.R. (1979) *The Birds of Victoria and where to find them.* Melbourne, Nelson.

C. Morley, 22 Fairmont St., Newtown 3220.

Swooping and diving!
Evasive action by a Red-necked Stint
Nigel Minton

While bird-watching at Queenscliff on 5 April 1981, I saw a Little Falcon *Falco longipennis* dive on to a flock of about 50 Red-necked Stints *Calidris ruficollis.* It singled out one bird and swooped on it. The Red-necked Stint took fast evading action and dived headlong into the sea. The falcon missed the stint, and so levelled off and flew to find easier prey. Then to my amazement, the stint flew from the sea with no trouble at all, and joined up with the flock which was close by.

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Swimming and diving:
evasive action by a Pied Oystercatcher chick
Brett Lane

On 28 October the Victorian Wader Study Group visited Swan Island, Queenscliff, to band waders.

A pair of adult Pied Oystercatchers *Haematopus longirostris* were observed feeding 3 dependent young. The young birds were estimated to be approximately 2 weeks old, and their pin-feathers were just beginning to show. The parent birds were actively foraging on the intertidal flats, obtaining large sandworms (polychaetes). They frequently fed the young with these worms, and ate several themselves.

One of the chicks became frightened and ran into the water. An attempt was made to wade after it and rescue it, but it swam on the surface of the water to about 5 metres from shore. By the time its pursuer had approached within arm's length, the water was approximately 1 metre deep. When a further attempt was made to catch it, it dived almost vertically to the bottom. The water was clear, and the bird could be seen propelling itself underwater with rapid wingbeats – in effect flying underwater – for about 2 metres. It then rose at an angle back to the surface, where it was finally caught.

Most of the plumage was still down. The water had not penetrated the feathers, and droplets rolled off, as off a duck's back.

The bird was then banded with a CSIRO band.

Brett A. Lane, 520 Malvern Rd., East Prahran, 3181.

Mt. Cole Campout: Birds

Trevor Pescott

The Club campout held in the Mt. Cole forest over the long weekend 6-8 March 1982 was not as productive in birdlife as was anticipated. The area generally was very dry and the weather hot – the 'break' came too late to be of benefit to us, with heavy rain falling from early on Monday morning after a wild Sunday night when wind gusts roared through the forest.

We camped at Ditchfield and spent the Saturday mornign in that vicinity; in the afternoon we went to the Fern-tree Waterfalls where a mere trickle of water proved an attraction to several species of honeyeaters.

Sunday became the day of main activity and we visited the Glut, Victoria Mill (for lunch) and the Ararat Reservoir; in each place the dryness of the forest was all too apparent – the reservoir in particular was extremely low.

The birds seen were as follows:

Wedge-tailed Eagle *Aquila audax*	One over Fern-tree Waterfalls area and one over the Ararat Reservoir.
Yellow-tailed Black-Cockatoo *Calyptorhynchus funereus*	Heard calling near Ditchfield camp.
Gang-gang Cockatoo *Callocephalon fimbriatum*	Two birds seen near the Ditchfield camp on 6 March. This species is not included in the published lists.
Long-billed Corella *Cacatua tenuirostris*	A small flock seen in the open country. The call was noted at Fern-tree Waterfalls area.
Sulphur-crested Cockatoo *Cacatua galerita*	Plentiful, with flocks seen at each area visited.
Crimson Rosella *Platycercus elegans*	Common and widespread throughout the forest.
Southern Boobook *Ninox novaeseelandiae*	Several were calling at night near the camp.

White-throated Needletail *Hirundapus caudactus*	A flock of about 30 birds was seen over Ditchfield on 7 March as we were preparing to leave camp for our day's outing.
Laughing Kookaburra *Dacelo novaeguineae*	Recorded at Ditchfield, Victoria Mill and The Glut.
White's Thrush *Zoothera dauma*	Seen only along the damp gully behind Ditchfield.
Flame Robin *Petroica phoenicea*	Recorded at Ditchfield and at Victoria Mill.
Eastern Yellow Robin *Eopsaltria australis*	Widespread and quite plentiful throughout the forest.
Golden Whistler *Pachycephala pectoralis*	Seen in all areas visited.
Rufous Whistler *Pachycephala rufiventris*	Only at Ditchfield.
Grey Shrike-thrush *Colluricincla harmonica*	Widespread and plentiful.
Satin Flycatcher *Myiagra cyanoleuca*	Birds were seen at both Ditchfield and Victoria Mill.
Rufous Fantail *Rhipidura rufifrons*	Recorded along the creek beside Ditchfield camp.
Grey Fantail *Rhipidura fuliginosa*	Widespread and common.
Superb Fairy-wren *Malurus cyaneus*	Only at Ditchfield.
White-browned Scrubwren *Sericornis frontalis*	Seen in each of the areas we visited.

Brown Thornbill *Acanthiza pusilla*	Noted at Ditchfield, Fern-tree Waterfalls and The Glut.
Striated Thornbill *Acanthiza lineata*	Seen only at The Glut.
White-throated Treecreeper *Climacteris leucophaea*	Widely distributed throughout the forest.
Red Wattlebird *Anthochaera carunculata*	At Ditchfield only.
Yellow-faced Honeyeater *Lichenostomus chrysops*	Noted in each area.
White-naped Honeyeater *Melithreptus lunatus*	Widespread throughout the forest.
Crescent Honeyeater *Phylidonyris pyrrhoptera*	Recorded at Fern-tree Waterfalls and The Glut.
New Holland Honeyeater *Phylidonyris novaehollandiae*	Seen only at Ditchfield.
Eastern Spinebill *Acanthorhynchus tenuirostris*	At Fern-tree Waterfalls and The Glut.
Spotted Pardalote *Pardalotus punctatus*	Seen in all areas.
Silvereye *Zosterops lateralis*	Recorded only at Ditchfield and The Glut.
Australian Magpie *Gymnorhina tibicen*	White-backed Magpies were quite plentiful in the open areas.
Pied Currawong *Strepera graculina*	Several birds seen in the forest.
Grey Currawong *Strepera versicolor*	At Victoria Mill only.

Raven *Corvus sp.*	Birds seen at Ditchfield camp were silent and the species was not determined.

Disused nests of Red-browed Firetail *Emblema temporalis* and Welcome Swallow *Hirundo neoxena* were found at Ditchfield camp area, but neither species was seen.

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T.W. Pescott, 4 Victoria Terrace, Belmont 3216.

Mt. Cole Campout: Mammals

Trevor Pescott

Little effort was made to systematically seek mammals during the 6-8 March 1982 Campout at the Mt. Cole forest, however on both Saturday and Sunday nights, 13 Elliott box traps were set, mainly along the creek below Ditchfield Camp.

On Saturday night, the traps were set close to the track amongst bracken, grass and fallen litter – nothing was caught; how much effect the bright moonlight had on the result is unknown.

The Sunday night effort was more carefully undertaken, ten traps being set amongst waterferns beneath tree ferns in the dampest part of the gully; the traps were covered with vegetation to shade the moonlight, and on this occasion two Brown Antechinus *(Antechinus stuartii)* were caught.

Three traps set on drier ground above the camp did not produce any results.

The only other native mammals recorded were –

Black Wallaby *(Wallabia bicolor):* several seen during the weekend.

Koala *Phascolarctos cinereus):* one seen near the Ararat Reservoir, and others heard at night in the Ditchfield camp area.

Several small bats were seen over the camp on Sunday evening, but identification was not possible.

REFERENCE

Forests Commission, Victoria. n.d. *Mt. Cole State Forest – animals.*

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Do Honeyeater Numbers Change in Accordance with Changes in Flower Abundance?

Graham H. Pyke

Of fundamental concern to ecologists are those factors which determine the distribution, abundance and movements of organisms. It is therefore surprising that rather little is known about these factors and how they operate. This is true for Australian birds in general, and honeyeaters in particular. Even more surprising, given the lack of "hard data", is the extent to which there are widely held beliefs on the subject. Such dogma, as I would call it, includes the beliefs that honeyeater density is determined or limited by flower abundance (or more precisely, by the level of productivity of nectar energy) and that honeyeaters move about from place to place in accordance with where and when their nectar sources bloom. Data supporting these assertions are very limited and largely anecdotal.

In a study of honeyeaters in heathland areas near Sydney, I found that honeyeater density showed *no relationship* to nectar energy productivity. Every three weeks since the beginning of 1981 I have estimated the abundance of honeyeaters in circular plots of radius 20m, counted the numbers of flowers within these plots, and measured the rates of nectar production and the nectar sugar concentrations for the various plant species. I combined the last three of these kinds of data and the known energy content of sugar to produce an estimate of the amount of nectar energy produced per circular plot per day. This could then be compared throughout the year with the number of honeyeaters per plot. The result was that fluctuations in level of nectar energy productivity were not matched by corresponding fluctuations in honeyeater numbers.

One possible explanation for this surprising finding is that insects are more important as food for honeyeaters than nectar. If this were the case, honeyeater numbers might be closely related to insect abundance. However, I also estimated insect abundance and biomass and found that neither showed any relation to the numbers of honeyeaters.

It is also possible that the density of "resident" (breeding) honeyeaters follows changes in nectar energy productivity while the lack of correspondence for total honeyeaters is due to more "transient" indificuals that move through the study areas, especially during times of low nectar production. Observations on behaviour of honeyeaters in the plots provide some support for this suggestion. Around the times of peak nectar production, there were peaks in the extent to which the honeyeaters captured insects (by hawking) and most signs of breeding activity were noticed. On the other hand, the proportion of honeyeaters that were flying when observed was greatest when nectar production was least. I suggest that many of these flying birds may have been transient. If they were, I have no idea where they were coming from or where they were going to.

The above suggestion concerning resident birds may be tested by working with colour-banded birds and collecting more data on breeding behaviour. Such an approach is presently under way. However, to determine the nature and extent of any movement of honeyeaters, and to relate this movement to seasonal patterns of nectar abundance in different areas, many studies similar to mine will have to be carried out. Ideally, such studies should be carried out simultaneously throughout the ranges of the honeyeater species of interest. In practice, of course, it is impossible for one person or even a small team of people to do all of this. For this reason, I appeal to you all to participate in a co-operative research project that could greatly increase our understanding and knowledge of Australian birds.

The basic requirement for my proposed co-operative research is that each participant visit the same area *regularly* throughout the year (I visit my study sites every 3 weeks, but I think once a month would suffice in most cases) and on each occasion obtain an estimate of the abundance of each bird species present. Combining the results of each person could tell us much about movements and population changes of birds. Suppose, for example, that the numbers of New Holland Honeyeaters in heathlands near the N.S.W. coast reached peaks in May near Sydney, June near Taree and July near the N.S.W. Queensland border. In that case, it might be deduced that the population of New Holland Honeyeaters tends to shift northwards during these months. In my study areas, I see peaks in the numbers of this species, but without knowing what happens in other parts of its range, it is very difficult to know what these peaks mean.

There are many ways to estimate the abundances of birds. Rather than everyone adopting their own method, I suggest that we agree on two or three standard methods and that each participant employ the one that is most suitable for him/her. I have opinions as to what these standard methods should be. Before presenting them, however, *I would like to gauge enthusiasm for this co-operative project and to receive your suggestions on census methods. So please write and let me know if you would like to participate or what ideas you have concerning methods.*

Those of you interested in honeyeaters might also like to collect simple data on flowering of important nectar sources. Such information could enable any movements or population changes to be interpreted in terms of where and when the nectar sources bloom. For other kinds of birds, it would be more difficult, but no less interesting, to follow changes in food abundance through the year. I shall be happy to provide a scheme for collecting flowering data to anyone who is interested.

Graham H Pyke, Australian Museum, P.O. Box A285, Sydney South, N.S.W. 2000.

A Visit to Grass-tree Park

Ina McIntyre

One sunny morning in early August Lorna Chappell and I called in at Grasstree Park, Torquay, hoping to see the Crescent Honey-eaters that Club members had reported seeing there in July.

There must have been a shower of rain, and there were pools of water in the car park. We pulled up just short of the largest pool, never dreaming it was the favourite bathing pool of the very bird we had come to see. No sooner had we stopped the car than there was a flash of yellow, and there was a Crescent Honeyeater splashing in the water, and giving us an excellent view of his distinctive markings as he twisted and turned with evident enjoyment, before flying off to the safety of nearby bushes. In a moment he was back, and for perhaps five minutes he kept repeating the whole performance, as if for our benefit.

Afterwards we made a curcuit of the park, expecting to see only the birds common to the area, but at the point furthest from the road, what should fly in but a White Goshawk and settle on a branch on one of the taller trees, staying long enough to give us a really good look at him and note his yellow legs, so we felt our brief visit to the park was the highlight of our morning's bird-watching.

Ina McIntyre, 383 Myers St., East Geelong, 3219.

HOUR COUNT No. 41
Inglewood, Victoria
Roy Wheeler

In March 1858 four miners, Alexander, Joseph and Thomas Thompson and Joseph Honey, commenced prospecting in the inhospitable scrub in the vicinity of Rose Hill, some 50 kilometres north-west of Bendigo. Lack of water for domestic and prospecting purposes forced the prospectors to leave the area until the following winter rains alleviated the water problem. Returning to the area in July 1859, the four miners struck alluvial gold in a gully, now known as Thompson's Gully, in November 1859.

Immediately the discovery was made known some 16,000 diggers rushed the area, which later became known as Inglewood. In 1863, Messrs Thompson and Honey were awarded £400 each for their discovery by the select committee for gold awards. With the diggers came the assortment of traders, store keepers, gold buyers, gamblers, sly-grog sellers and others who set up where ever a spot was cleared in the scrub. The summer of 1859 was an extremely hot one and fires raged for miles in the district. Flies and mosquitoes were as abundant as the dust, and the nearest water was at Sandy Creek 8km distant, or the Loddon River some 11km away. The shallow gullies at Rose Hill exposed some of the richest alluvial deposits found in Victoria up to that time. It was inevitable that the area would quickly be worked out, and the area soon became deserted. However with the finding within the next twelve months of another 80 payable reefs, the area around Inglewood as we know it today, became the main gold field. The first licenced hotel was the Forget-me-not in Brooke Street, long since gone. During the 1860's there were 23 hotels as well as dozens of sly-grog shops and wine saloons. Today only two hotels remain: the Royal and the Empire State. Jules Vogel, later to become Prime Minister of New Zealand, started the *Inglewood Advertiser* at the rear of the Royal Hotel in Chancery Lane in 1860. In December 1862 the Great Fire of Inglewood destroyed 65 buildings, including a church, two banks, a theatre, eight hotels, and 40 shops. These details were taken from *Back to Inglewood* published in March 1973 by I.J. Wemyss.

In January 1980 I visited Mr. & Mrs. Fred Watts at Inglewood and made two hour counts in the district, details herewith.

Inglewood, Vic. Bradley's Eucalyptus Factory, Kingower Road. January 21, 1980. Fine and sunny with occasional cloud. 11 a.m. to midday. Birds in order of sighting. Two observers: Mr. Fred Watts and Roy Wheeler.

Rainbow Bee-eater, 22; Brown-headed Honeyeater, 2: Yellow-tufted Honeyeater, 26; White-eared Honeyeater, 4; Yellow-rumped Pardalote, 2; Red Wattlebird, 2; Grey Shrike Thrush, 1; Peaceful Dove, 2; Mistletoe-bird, 5; Superb Fairy-wren, 1; Yellow-plumed Honeyeater, 1; Tawny-crowned Honeyeater, 1; White-throated Tree-creeper, 1; Weebill, 1; White-browed Wood-swallow, 2; Australian Magpie, 2; Willie Wagtail, 1; Little Grebe, 2; Spine-tailed Swift, 5; Diamond Firetail, 2; Brush Bronzewing, 4; Silvereye, 8; Kookaburra 1; Fuscous Honeyeater, 1; Brown Treecreeper, 1; Brown Goshawk, 1.

Total 26 species and 101 individuals.

Inglewood, Vic. Old Inglewood Reservoir close to township. January 22, 1980. Fine and sunny with a south-west breeze. 9 to 10 a.m. Birds in order of sighting. Two observers: Mr. Fred Watts and Roy Wheeler.

Musk Duck, 3; Little Raven, 8; Masked Lapwing (Spurwinged Plover), 2; White-browed Babbler, 2; Rufous Whistler, 2; Superb Fairy-wren, 8; Goldfinch, 6; Yellow-rumped Pardalote, 2; Welcome Swallow, 1; Yellow-plumed Honeyeater, 5; Peaceful Dove, 2; Red-browed Finch, 6; White-eared Honeyeater, 10; Brush Bronzewing, 2; Western Gerygone (Warbler), 1; Tree Martin, 21; Clamorous Reed Warbler, 18; New Holland Honeyeater, 6; Rainbow Bee-eater, 2; Australian Magpie, 3; Weebill, 12; Brown Goshawk, 1; White-browed Wood-swallow, 12; White Ibis, 2; Silvereye, 21; White-fronted Chat, 2; Chestnut-rumped Thornbill, 6; Red-rumped Parrot, 1; Fuscous Honeyeater, 1; Brown-headed Honeyeater, 2.

Total 30 species and 160 individuals.

Roy Wheeler, 59a Upton Road, Windsor. Vic. 3181.

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Editorial 86
C. Morley: Birds of Eastern Park, Geelong 87
R. Wheeler: Hour Count No. 42 Centennial Park, Sydney 115

Editorial

This is almost a special issue — Craig Morley's thorough study of the birds of Eastern Park takes up almost the whole journal. It is a fine example of the information that can be gained by detailed and careful study of even a fairly small area. It is interesting to compare the Park's list with that of Centennial Park in Sydney, which is fairly similar in size but much more varied in habitat, having several very large lagoons one of which includes a thickly vegetated island. Although Centennial Park's list of species observed is much longer, the number of breeding species is comparable, and it is certain that the more recent native plantings in the Botanical Gardens, and the lagoon planned for the grounds of the nearby Institute of Educational Administration, will attract more birds to Eastern Park. Craig hopes to update his list and would welcome further reports.

Margaret Cameron

Birds of Eastern Park, Geelong

Craig Morley

Introduction

This article follows up an earlier short study of the birds of Eastern Park undertaken in early December 1979 (Morley 1980), and contains notes on 102 species observed in the Park, and two observed nearby, in the period 1887 to December 1982. Ninety species were reported during the period of the present study, 1974 – 1982. These current sightings are put in context by extensive reference to the work of Sir Charles Belcher, as recorded in his book *The Birds of the District of Geelong, Australia* (1914) and elsewhere, and a brief biography of Belcher and a history of the Park give a historical perspective.

Method

34 observation sessions from 4th December 1979 to 19th June 1982 form the basis of this article (see Table 4). Sightings made during these sessions have been supplemented by casual observations (1977 – 1982) made independently by the author and Grant Baverstock, a member of tbe Botanical Gardens staff. Additional sightings were made by Margaret Cameron, Lawrie Conole, Don Francis, Mrs Diny Krab, Trevor Pescott, Graeme Tribe, and Brett Ward.

Study Area

The Eastern Park (Figure 1), an area of 80 hectares, consists mainly of open spaces with plantings of sugar gums and exotic pines (Figure 2). The Geelong Botanical Gardens within the Park are more densely vegetated with exotic and native trees and shrubs (Figure 3).

The Park is situated to the east of the central business district of Geelong. It is bounded to the north by Corio Bay, to the south and west by urban dwellings, and to the east by cleared land on which the Animal Health Laboratories are being built. The Geelong High School is in the south-west corner of the Park.

Species List

Hoary-headed Grebe *Poliocephalus poliocephalus*

A distressed bird was found in the pond in the Botanical Gardens, April 1978. It was treated by Fisheries and Wildlife officers and released on Corio Bay near the Geelong Grammar School. (G.B.)

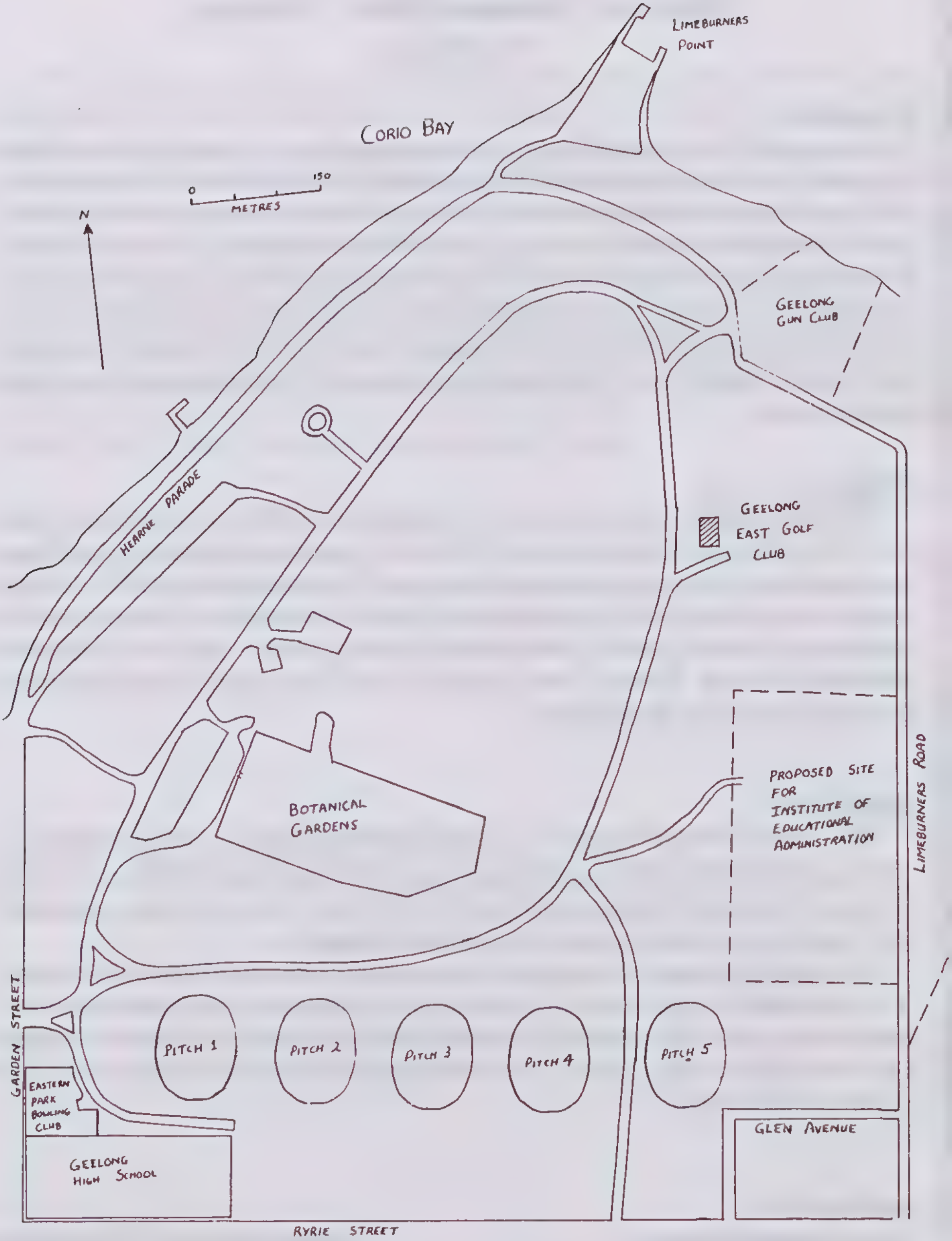

FIGURE 1. Map of Eastern Park

Australian Pelican *Pelecanus conspicillatus*

Single birds or small numbers regularly seen overhead. Three observed roosting along shoreline at Limeburners Point, 2nd May 1982.

Pied Cormorant *Phalacrocorax varius*

These birds can be seen on Corio Bay, and have been observed overhead on at least one occasion (one, in October 1982). Belcher made reference to them, flying in to roost in the evening around the Swan's Pond; particularly during autumn and winter, each year prior to 1903.

Belcher made general notes about cormorants. He recorded 559 birds in half an hour on 1st May 1902, coming in to roost in poplars and willows around the old pond. There were Pied, Little Pied, and "only five Little Blacks."

Little Pied Cormorant *Phalacrocorax melanoleucos*

Large flocks regularly seen overhead, flying north-east at dawn and south-west at dusk (M.C.) Occasional small flocks overhead at other times (12th September 1981). Occasionally observed roosting along low water mark at Limeburners Point (20 on 2nd May, 1982).

Little Black Cormorant *Phalacrocorax sulcirostris*

Large flocks regularly seen overhead at dawn flying north-east and at dusk flying south-east (M.C.) Occasional small flocks of up to ten birds overhead at other times.

Belcher noted that the Little Blacks come to roost in much smaller numbers than the Pied or Little Pied.

White-faced Heron *Ardea novaehollandiae*

Occasional, one bird found dead in December 1980 in north-east corner of Park. Dead no more than two days and apparently unmarked. Dead bird found in pond in Botanical Gardens in early July, 1982 (G.B.) Usually single birds seen overhead, but up to three birds were observed feeding on ground in Park and Botanical Gardens, April-May 1982 (G.B.)

Rufous Night Heron *Nycticorax caledonicus*

A roost in pines in the eastern area of the Park has been known to local residents since 1974. As many as twenty birds were there in early April 1982 (G.B.). One at edge of pond in Botanical Gardens; flew into Bunya pine, then off east towards Saltworks, June 1978. During May 1982, one observed foraging in garden beds in Botanical Gardens during daylight (G.B.).

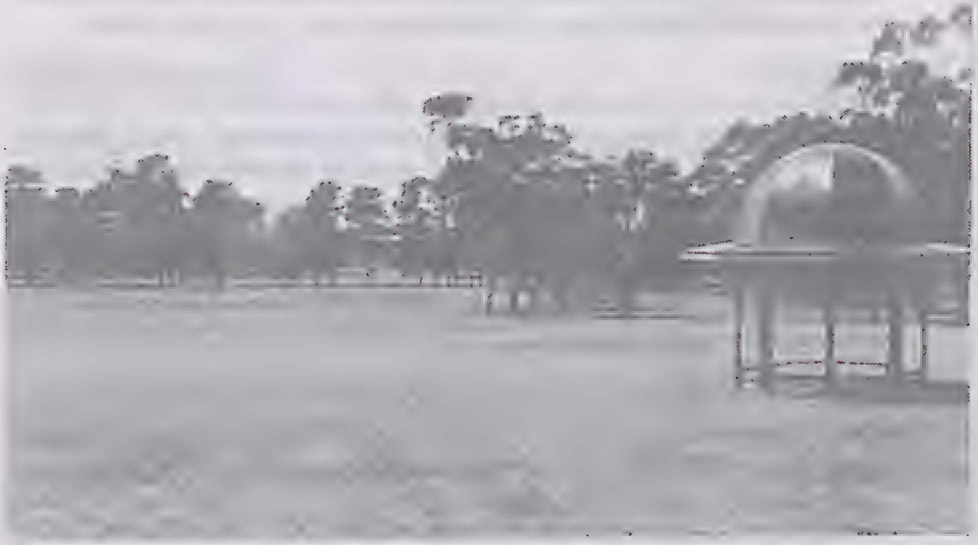

FIGURE 2. Grassland, pines and sugar gums.

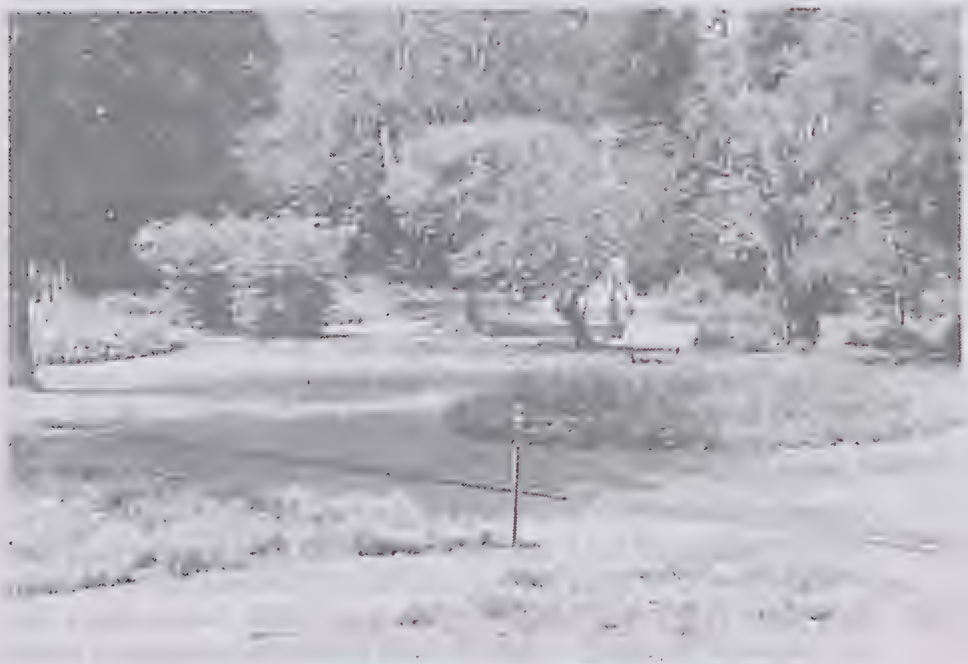

FIGURE 3. Botanical Gardens.

Sacred Ibis *Threskiornis aethiopica*

More numerous from September to March. Occasionally seen over park. Numbers range from one to sixteen.

Straw-necked Ibis *Threskiornis spinicollis*

Flocks of up to sixty have been seen overhead. One individual observed feeding in Park on several occasions in December 1980. The holes made by its probing beak were two centimetres in diameter at ground level and at least fourteen centimetres deep. Other odd birds occasionally seen feeding. More numerous from September to March.

Black Swan *Cygnus atratus*

Flocks regularly seen overhead or heard passing over at night (M.C.)

Black-shouldered Kite *Elanus notatus*

Only one recorded, in flight and perched at the eastern boundary of Corio Oval (now the site for the Institute of Educational Administration), 10th April, 1980.

Whistling Kite *Haliastur sphenurus*

Only one recorded, overhead, April 1978.

Brown Goshawk *Accipter fasciatus*

Occasional. One on the 3rd July 1980 perched at the top of 6 metre tree (G.B.). One dead bird found on Pitch 4, shot by air rifle, January 1981 (G.B.). One seen in and around Botanical Gardens on 13th March and 12th June, 1982.

Grey Goshawk *Accipter novaehollandiae*

A white phase bird was observed in and around the Botanical Gardens for 3 weeks in April 1980. It was often chased by up to 5 Australian Magpies (G.B.) A white bird was again present during May and June 1981 (G.B.), and another was observed on 27th February 1982 (G.B.).

Peregrine Falcon *Falco peregrinus*

A pair were observed hawking over pitch 2 in January 1978. One bird over school, the following month. Birds calling loudly on both occasions.

Australian Hobby *Falco longipennis*

Regular visitor. One was heard calling after sunset on the 17th August 1980. One observed on 8th and 9th December 1980 chased by Willie Wagtail at tree top level (15 metres). Pair over Park on 8th December 1981, single birds on 7th and 9th. February 15th, June 12th and 19th, 1982, a single bird observed perched on exposed upper branch of sugar gum near pitch 3.

Belcher remarks that in his time very few were left but that one was shot very close to Eastern Park in early 1892.

Brown Falcon *Falco berigora*

Occasional. One observed over Park when Peregrines were present, January 1978. One seen on 11th December 1980. Pair over Park on 12th September 1981 (T.P.)

Australian Kestrel *Falco cenchroides*

One over the north-western section of the Park harassed by a pair of Little Ravens on 7th May 1980. One observed on 13th March 1982.

Stubble Quail *Coturnix novaezelandiae*

One record: one bird flushed from short grass north of pitch 1, December, 1979.

Painted Button-quail *Turnix varia*

One in glass-house on 7th April, 1981. Occasionally seen around the nursery area of Botanical Gardens and in longer grass in the Park (G.B.).

Belcher recorded this species breeding in the Park.

Buff-banded Rail *Rallus phillippensis*

No recent records.

Belcher records "They nested for years in long grass near the now dry pond in the Eastern Park. One cat was, I know, responsible for at least three of these birds."

Masked Lapwing *Vanellus miles*

Resident: At least one pair appear to have bred in most seasons. Pairs with 3 dependent young observed in early December in both 1979 and 1980. Small numbers can usually be seen around Golf Course and Gun Club throughout the year.

Silver Gull *Larus novaehollandiae*

Always some present either overhead, in the school ground, or at Limeburners Point.

Pacific Gull *Larus pacificus*

Occasional birds seen at Limeburners Point. One immature on 2nd December 1980, adults and immature birds noted during winter 1982.

Crested Tern *Sterna bergii*

Occasional birds seen at Limeburners Point; December 1979, February and June 1982.

Domestic Pigeon *Columbia livia*

Occasional. Pair nested in school buildings Dec. 1980. Four or five birds noted on occasions roosting on school buildings during winter 1982.

Spotted Turtle-Dove *Streptopelia chinensis*

Very common breeding resident, seen in pairs or small parties.

Diamond Dove *Geopelia cuneata*

One record: area near Gun Club 10th December 1981, appeared exhausted, and was reluctant to fly. Probably aviary escapee.

Yellow-tailed Black-Cockatoo *Calyptorhynchus funereus*

No recent records.

Belcher records that A.J. Greenfield noted "a flock of about sixteen in the Eastern Park on 16th May, 1912."

Gang-gang Cockatoo *Callocephalon fimbriatum*

Usually absent during summer. Unusually large numbers were present in the Geelong region during 1980 and their numbers in Eastern Park were indicative of this influx. First observed in mid-March; 10th April: 30 to 35; 14th August: 10 males, 10 females, 3 immature; 17th August: approximately 20; 13th October: 3 immature birds still present.

On 1st Feb 1981, 30 to 40 birds were noted by Mrs. D. Krab (pers. comm.). This flock appeared to remain until October 1981. A flock of about 20 on 12th September 1981 (T.P.).

In 1982 Gang-gangs did not remain in the park throughout the winter. Belcher notes "(in) 1905, 1907, and 1913 they visited the Eastern Park, arriving about March and leaving in October, feeding all through the winter on the seed pods of the sugar-gums". (Not less than fifty birds), "A nest with eggs was reported to have been found in the Park later in the year (1913)."

Galah *Cacatua roseicapilla*

Occasional, Heard in Park during January 1978. One over school in October 1980. Pair over school on 16th February 1981. One flying through Park on 23rd February 1982. Pair on 13th March 1982. One pair over school on 16th and two pairs on 23rd July, 1982. Flock of up to 30 observed feeding on the south eastern corner of the Park July - August 1982. (G.B., D.F., M.C.)

Long-billed Corella *Cacatua tenuirostris*

One record: a flock of 8 or 9 birds overhead in December 1980 (G.B.)

Sulphur-crested Cockatoo *Cacatua galerita*

Groups numbering 8 or 9 seen from February to September 1978, and on occasions in 1979, feeding on pine cones and gum blossoms (G.B.) A possible aviary escapee was observed in eastern section of Park throughout 1979. On 21st April 1981 a tame pair were in the Botanical Gardens.

Rainbow Lorikeet *Trichoglossus haematodus*

Pairs observed occasionally, for example 12th June 1980, 16th February 1981, early March 1981 and 10th March 1982.

Musk Lorikeet *Glossopsitta concinna*

Occasional: one noted on 10th April 1980, calling loudly and often while perched and in flight.

Flock of 14 overhead on 6th April 1982.

Purple-crowned Lorikeet *Glossopsitta porphyrocephala*

Occasional: small flock overhead during April 1980. Pair overhead in December 1980. One heard and seen overhead in February and April 1982.

Crimson Rosella *Platycercus elegans*

Small numbers usually visit from March to October each year. One adult and two immatures, in April 1980; three immatures, October 1980; one adult on 12th September 1981 (T.P.).

During June and July 1982, up to five birds (two adults) were observed on a number of occasions.

Belcher remarks on "flocks of immature Crimson Rosellas which frequent the Gardens at most seasons but especially winter."

Pallid Cuckoo *Cuculus pallidus*

Few recent records: a single silent bird noted on 12th September 1981 (T.P.); one heard calling on the morning of 11th August 1982 (G.B.). Belcher recorded them breeding, and remarks that in some years Pallid Cuckoos were very common in the Park: in Spring 1913 "the Park resounded with calls of Cuckoos to their mates". His earliest record of a Pallid Cuckoo calling was from the Eastern Park on August 7th 1913: "not yet in very good voice".

Fan-tailed Cuckoo *Cuculus pyrrhophanus*

This bird was recorded breeding by Belcher, who considered it to be more common than the Pallid Cuckoo in a normal year, but it is now observed very rarely. An injured one was present in the Botanic Gardens from 16th—18th August 1980 (G.B). One heard and glimpsed in flight December 1980.

Horsfield's Bronze-Cuckoo *Chrysococcyx basalis*

Heard calling during October 1980 (G.B.) and 1981. Recorded breeding by Belcher.

Shining Bronze-Cuckoo *Chrysococcyx lucidus*

A common spring-summer migrant which breeds in the Park, and is regularly heard there. First record for 1980 in mid-August 1980 (G.B.) One was heard calling on 5th May 1981 (G.B.)

As many as five immatures (December 1980) have been recorded at any one time being fed by foster parents. Recorded breeding by Belcher. From observation made, the Shining Bronze-Cuckoo is exclusively parasitic on the Yellow-rumped Thornbill in Eastern Park, and Belcher noted "in my experience (in the Geelong district) the Bronze-Cuckoo never chooses for its egg any other nest than that of the Yellow-tailed Tit."

Southern Boobook *Ninox novaeseelandiae*

One bird observed high in thick eucalypt foliage in eastern section of the Park on 14th, 17th and 18th August 1980, absent on 19th August. On the 17th August, it flew from its roost (15m) at 1815 to exposed branch (15m) of nearby tree, then after approx. 1 minute flew towards Golf Course.

For at least the last three weeks of July 1982, a bird roosted 6 metres up in a pine near the entrance to the Gardens (G. B.) On one occasion it was observed flying around the Botanical Gardens during daylight, (G. B.).

Tawny Frogmouth *Podargus strigoides*

One found alive on ground under pine after strong winds, mid 1977. (Brett Ward pers. comm.)

White-throated Needletail *Hirundapus caudacutus*

One seen flying over park before a storm 11th April 1980 (G. B.) Almost every morning before dawn in January 1982 birds probably of this species were heard over the Park (G. B.)

Fork-tailed Swift *Apus pacificus*

One group of about 20 over Park after 3 days of very hot weather 15th February 1982. A rare bird in southern Victoria; Belcher made only one observation in the district.

Laughing Kookaburra *Dacelo novaeguineae*

A nesting box placed at a height of approximately 10 metres on a palm tree in the Botanical Gardens has been occupied by a breeding pair every season since 1946/47, except in the period 1974 to 1977.

The box was erected by the late Mr. Bill Walley, the then curator of the Gardens. Three young were raised in the first season but no further success has been achieved. (Mrs. L Walley pers. comm.)

In 1961 a pair were observed trying to drill a hole into a palm tree in the Gardens (T. P.)

On occasions through 1981 two pairs were observed (G. B.). In June 1981 one pair made attempts to burrow in a decayed column in the Atlas Cedar in the Gardens. For about an hour they chipped at the column but eventually gave up (G. B.)

Probably the same pair made attempts to nest in the nesting box in early Spring 1981, but abandoned their attempts after a week, (G. B.) Recorded breeding by Belcher.

Sacred Kingfisher *Halcyon sancta*

One noted near entrance to Botanical Gardens on 6th December 1979. One seen and heard in same place from 29th October to 5th November, 1980. (G.B.).

Recorded breeding by Belcher.

Belcher noted "Sacred Kingfishers come to us in October and leave about January. I find my earliest record is of one seen on September 29th (1912) near Jan Juc (not calling) and latest, February 6th (1902) when I saw one pursued through the air by a Laughing Jackass near the old "Swan's Pond" in the Eastern Park."

Rainbow Bee-eater *Merops ornatus*

Only one record: heard very high over park after 3 days of very hot weather (15th February 1982).

Skylark *Alauda arvensis*

Can be heard calling while hovering high over open areas during spring and summer. Probably breeds. Flock of ten noted in long grass in open area on 19th June 1982. Usually singly or in pairs.

Welcome Swallow *Hirundo neoxena*

Observed throughout the year, more numerous in spring and summer. Successful fledging of three young at school, December 1981; previous unsuccessful attempt December 1980. Attempts to nest most years under school eaves.

Recorded breeding by Belcher.

Tree Martin *Cecropis nigricans*

Only one record: a loose flock of about 12 over park after 3 days of very hot weather (15th February 1982).

Fairy Martin *Cecropis ariel*

No records, however Belcher notes "Until about 1902 large numbers of Fairy Martins used to assemble towards the summer's end in the Eastern Beach Reserve (which adjoins the Eastern Park) perching on the pines and willows about the steps going down the hill. Of late years I have not seen these."

Richard's Pipit *Anthus novaeseelandiae*

Only one recent record, of one near Limeburners Point, early December 1982. Recorded breeding by Belcher.

Black-faced Cuckoo-shrike *Coracina novaehollandiae*

Uncommon, one to three birds on odd occasions. Belcher remarked that Eastern Park is "a favourite place of call."

White-winged Triller *Lalage sueurii*

Belcher says; "From 1886 to 1897 I do not remember seeing this bird in the Park, as I believe I should have done, had it come there but for the last seventeen years it has been an unfailing annual visitor, and there must be now a dozen pairs there every spring, making their clear ringing calls heard on all sides."

Recorded breeding by Belcher. Only one recent record: a singing male in breeding plumage at the top of sugar-gums on November 1st 1981.

Blackbird *Turdus merula*

Common resident, usually seen in Botanical Gardens but can be seen in Park. Breeding.

Song Thrush *Turdus philomelos*

One record: one bird, or possibly a pair, present for a week in early July 1980 in Botanical Gardens (G.B.).

Pink Robin *Petroica rodinogaster*

Regular autumn-winter visitor. At least two brown birds present in Botanical Gardens from April to August 1980, and 6 throughout winter 1981. Up to eleven brown birds (G.B.) noted in Botanical Gardens during June-July 1982. On 10th April 1982 two brown birds were observed on a garden bed in the Botanical Gardens. Both birds were heard uttering high-pitched chattering calls. One bird, which had several tufts of down on the upper part of its slightly puffed breast, was begging with opened beak. The second bird drooped and flicked its wings. This behaviour was observed twice during a ten minute period, but no feeding was noted.

Pink Robins are typically observed perched motionless on a low branch under cover, or on a garden sprinkler. Characteristic call of "tick tick."

Flame Robin *Petroica phoenicea*

Several birds (including a coloured male) along Hearne Parade in May 1980 (M.C.) Two brown birds noted in north-west area of Park, 10th April 1982.

Scarlet Robin *Petroica multicolor*

Regular visitor mainly in autumn and winter.

At least three pairs were present in the Park during autumn and winter 1980. One or two immatures were noted during this time (G.B.). A pair and one immature were present during December 1980.

One pair in Botanical Gardens on 12th April 1981 (M.C.) and on 12th September 1981 (T.P.)

Up to three pairs noted in the Park during autumn and winter 1982. Belcher wrote "there could be no better place to study this beautiful little red-breast than the Eastern Park, where it has in the last decade become so well established that a dozen pairs breed there every year." Belcher also noted that "nesting starts in the Park in July. . . "

Jacky Winter *Microeca leucophaea*

No longer recorded although Belcher remembers a nest in the late 1880's.

Golden Whistler *Pachycephala pectoralis*

Frequent visitor. A pair observed in December 1979 west of Botanical Gardens. During April-May 1980, a pair and an immature (bronze wash in wings) were observed at different times. Recorded in 1981 in or near the Gardens in April, May, September and November.

Up to three (possibly two immature and female) were noted frequently in Park during March-July 1982.

Belcher made no specific reference to the Park but commented that he had not seen a male bird in the town of Geelong.

Rufous Whistler *Pachycephala rufiventris*

One female was present between the school and Botanical Gardens from 31st October to 11th December 1980. (G.B.) Two birds heard calling in close proximity on 1st November 1981. An immature noted in sugar gums along southern boundary on 13th March, 1982.

Belcher noted that at least half a dozen pairs bred regularly.

Grey Shrike-thrush *Colluricincla harmonica*

Occasional autumn and winter visitor. Heard calling in Gardens on 15th and 16th April 1981 (G.B.) At least one immature (possibly two) present in and around Gardens during June-July 1982.

Belcher recorded this bird occasionally during winter.

Satin Flycatcher *Myiagra cyanoleuca*

Only one record, of female along the southern boundary of Botanical Gardens, 4th December 1981. Belcher remarks that he had seen only male birds in Geelong.

Restless Flycatcher *Myiagra inquieta*

No recent records. Belcher noted that "these birds visit the Eastern Park occasionally."

Rufous Fantail *Rhipidura rufifrons*

Occasional autumn visitor, during migration. 3 birds present for 3 weeks in April 1978 in Botanical Gardens (G.B.). 3 or 4 birds were again present in the Gardens during April-May 1982 (G.B.) Belcher records their presence from March to May.

Grey Fantail *Rhipidura fuliginosa*

Common breeding resident, mostly in Botanical Gardens. Up to 30 on 12th April 1981 (M.C.). Active nests found in Botanical Gardens in December 1980 and 1981. Belcher notes "The Eastern Park has proved a sanctuary to this, as to so many other species.

Visiting it at first only from February to July, a few birds presently remained in the Park to breed and since the year 1898 several broods have been hatched there annually."

Willie Wagtail *Rhipidura leucophrys*

Common breeding resident in all of Park.

In December 1980 a pair of birds were observed feeding 4 fledged young in the eastern section of the Park. At least one pair were particularly active and vocal around the school ground during April 1981. At least three breeding pairs December 1981. Belcher recorded this species breeding.

Rufous Songlark *Cinclorhamphus mathewsi*

No longer recorded, However Belcher notes "These birds have from time to time visited the Eastern Park in the spring and bred there, coming in October and leaving in January."

He commented on its spasmodic visits: 1885 to 1892 visited each year; absent till 1898; after which they were regular till spring 1901, from which time he did not see them. Belcher made mention that these birds usually nested close to the old filled-in pond.

Superb Fairy-wren *Malurus cyaneus*

No recent records. Belcher recorded this species breeding in Eastern Park.

White-browed Scrub-wren *Sericornis frontalis*

Apparently very uncommon. An immature bird was observed foraging in a garden bed in the Gardens on 19th June 1982, and another (possibly the same) 13th August 1982.

Belcher noted "there are always a few pairs inhabiting gardens in the town, ...in 1913 a pair nested in the Conservatory in the Eastern Park."

Speckled Warbler *Sericornis sagittatus*

No longer recorded. Belcher comments "Curiously enough for such a bush-loving bird, a few have at times lived in the Eastern Park and in 1904 to my knowledge a pair nested there."

Brown Thornbill *Acanthiza pusilla*

Possibly 5 or 6 resident, and restricted to the Gardens where they probably breed. Immature noted on 15th December 1981. Always observed in shrubs or trees, except for two birds foraging in a garden bed on 13th March 1982. In Belcher's time many pairs bred annually.

Yellow-rumped Thornbill *Acanthiza chrysorrhoa*

Breeding resident, common throughout the Park. Possibly less numerous in Gardens. Pairs can be seen but more usually flocks of up to twenty are noted.

Larger flocks in autumn and winter. Flock of 50 observed on 19th June 1982. Two nests were observed being built in pines, amongst pine cone clusters, on 1st November 1982. At each site both birds were collecting material.

From observations made, it appears that this species is the sole host of the Shining Bronze-Cuckoo. Sometimes feeds in short grass in mixed groups with some if not all of the following: Greenfinch, Goldfinch and House Sparrow. Noted also on 27th May 1981, a group of 8 to 10 feeding with a Pink Robin (L.C.)

On occasions during June-July 1982 flocks of up to 12 were seen and heard on the lawns and shrubs at the front of the school.

Yellow-rumped Thornbills are regarded as a terrestial species amongst the Acanthiza genus, and this is certainly the case in the Park, though on occasions, individuals can been seen foraging in eucalypts and pines up to 15 metres.

A common breeding species in Belcher's time.

Yellow Thornbill *Acanthiza nana*

Breeding resident; numbers tend to fluctuate, up to 20 on 13th March 1982, in 2 or 3 groups; but usually in small parties of 4 or 5. Normal Park population is approximately 10-12. Always observed in trees.

Belcher documented its establishment in the Park. "(It) was almost unkown here five years ago (1899), whereas now its pleasant twittering song can be heard at all times of day and throughout the year. . . "

Belcher noted that it was one of the commonest small birds in Eastern Park and recorded it breeding.

Red Wattlebird *Anthochaera carunculata*

Conspicuous and vocal throughout the year, though numbers fluctuate. Possibly more numerous in autumn and winter. Shows distinct preference for areas where there are eucalypts. Regularly breeds. An immature bird with indistinct and small pale wattles was brooding young in December 1980.

Recorded breeding by Becher.

Spiny-cheeked Honeyeater *Acanthagenys rufogularis*

No recent records in the Park, although one was heard in a residential garden less than 100 metres away on 5th May, 1981 (G.T.)

Belcher noted "a pair or two. . . may at times rear broods in the Eastern Park."

Yellow-faced Honeyeater *Lichenostomus chrysops*

Regular autumn-winter visitor in small groups of 3 or 4. Up to 10 in Gardens on 12th June 1982. Belcher makes no specific reference to the Park but does comment that they are occasionally seen in the town in winter.

White-plumed Honeyeater *Lichenostomus penicillatus*

An uncommon autumn and winter visitor, apparently becoming more numerous. Only 1980 record, one bird feeding in callistemon at school on 2nd July. First 1981 record in late March (G.B.) One bird in school callistemon, May 1981. Records became more frequent in 1982, when single birds were noted in sugar gums along the southern Park boundary on five occasions through March and April. During the period March to July single birds were noted on five occasions visiting the school callistemon and on one occasion a eucalypt sapling near the school. A pair and an immature were observed in the northern section of the Park on the 10th April, 1982. Belcher recorded breeding and commented "nowhere more abundant than in Eastern Park."

Brown-headed Honeyeater *Melithreptus brevirostris*

No records for the Park, but the species was heard in a residential garden less than 100 metres away on 28th June 1981 (M.C.)

White-naped Honeyeater *Melithreptus lunatus*

Regular though not common visitor from late April through winter. Three birds high in eucalypts in Gardens on 8th May 1980. Eight in Gardens on 5th June 1980 (G.B.)

In 1982 from 2 to 8 birds were observed in the Gardens from late April through winter.

Belcher noted small parties of 4 or 5 flying over Eastern Park.

New Holland Honeyeater *Phylidonyris novaehollandiae*

In 1980 and 1981 an uncommon visitor; observed more frequently in 1982. One heard in Gardens May 1980 (G.B.) Single birds feeding in school callistemon 18th June 1980, 15th April 1981. In 1982 during January and February they were quite common in the Gardens (G.B.) and during February one and occasionally two birds made regular visits to the school callistemon. Visits became less frequent through March and April, until late May through June and early July when visits became more frequent and regular. Heard in Gardens in July (G.B.) Recorded breeding by Belcher.

Eastern Spinebill *Acanthorhynchus tenuirostris*

Regular autumn-winter visitor to the Park. Present in Gardens from April to August 1980; a group of approximately 5 including an immature was noted on 29th April 1980. Fewer than usual were present in the Gardens during autumn and winter 1981.

Heard and seen far more frequently around school during autumn and winter 1982. Single birds made almost daily visits to the school Callistemon and shrubs during June and July. Up to 8 birds noted at one time in Gardens (G.B.)

White-fronted Chat *Ephthianura albifrons*

No recent records. Recorded breeding by Belcher.

Mistletoe Bird *Dicaeum hirundinaceum*

Only one record of two, possibly three, passing through the Park on 20th April 1982. Belcher makes no specific reference to the Park, but does comment, "Whenever I have seen this bird in the Geelong district and that is not often, it has been "on the move.""

Spotted Pardalote *Pardalotus punctatus*

Resident. Heard throughout the year, usually high in eucalypts. More frequently heard than seen. Probably breeds. Pair and immature noted on 10th April, 1982.

Striated Pardalote *Pardalotus striatus*

Odd birds throughout the year.

Silvereye *Zosterops lateralis*

Common. Present throughout the year, mostly in Botanical Gardens where nesting was recorded in March 1980 (G.B.) and an old nest was found in June 1982. Numbers fluctuate. More numerous in autumn and winter when flocks can number up to 30 or 40 (including some buff-flanked Tasmanian birds). In Gardens 12th April 1981 (M.C.) Recorded breeding by Belcher.

European Goldfinch *Carduelis carduelis*

Common in spring and summer, less numerous in autumn and winter. Breeding. Belcher comments "one can see many hundreds any day in Eastern Park."

European Greenfinch *Carduelis chloris*

Common and vocal in spring and summer, less numerous or absent in autumn and winter. Breeding; nest in bunya pine 1978 (G.B.).

House Sparrow *Passer domesticus*

Common resident, can be seen in all parts of Park

Tree Sparrow *Passer montanus*

Occasionally seen. (December 1979 and 1980, July 1982). Fairly common resident in surrounding suburban areas.

Common Starling *Sturnus vulgaris*

The most conspicuous bird in the Park, both in numbers and behaviour. Breeds in hollows in trees and in buildings. Flock of 50 feeding on Pitch 4 December 1981. Mimicry includes Willie Wagtail, Golden Whistler, Grey Butcherbird, Masked Lapwing and Yellow-rumped Thornbill.

Olive-backed Oriole *Oriolus sagittatus*

Only one record: one bird heard for two days in November 1980 (G.B.)

Australian Magpie-lark *Grallina cyanoleuca*

Common resident. Three nests found in December 1980, and 8 breeding territories mapped in November 1981. Small flocks of up to 6 may form in winter. Up to 5 pairs observed on Golf Course on 12th June 1982 when territorial calling by 2 of these pairs was noted when a third pair attempted to alight in trees they occupied. Recorded breeding by Belcher.

Masked Woodswallow *Artamus personatus*

No longer recorded. Belcher comments "the Masked species I have met with nesting once, when a pair built on an upper bough of a spreading cypress tree in Eastern Park".

White-browed Woodswallow *Artamus superciliosus*

Belcher remarked "it is usual for a few pairs to come to the Eastern Park every summer, and these probably breed." No recent records.

Dusky Woodswallow *Artamus cyanopterus*

Belcher records "A few pairs nest in the Eastern Park, and I know of no piece of bushland where you will not be likely to meet it." Only one recent record, of a flock of 20 to 30 fifty metres overhead during late November 1981 (G.B.)

Grey Butcherbird *Cracticus torquatus*

Apparently only one pair resident. December 1979 one fledged young being fed. December 1980, one nest in horizontal fork in pine, approx 6 metres. Adult bird observed catching a cicada to feed young. These two young were later blown from or fell from the nest, about a week before they were ready to fledge. November 1981, heard mimicking Red Wattlebird and Sparrow.

One immature seen November 1, 1981. December 1981, pair with two fledged young. On 13th March 1982 two immatures with an adult in southern area of Park.

Belcher noted that one or two "penetrate to the Eastern Park in autumn."

Australian Magpie *Gymnorhina tibicen*

Common and numerous. At least 4 breeding territories in December 1981. Belcher recorded this species breeding in Eastern Park.

Pied Currawong *Strepera graculina*

No longer recorded. Belcher recorded 7 or 8 birds visiting the Eastern Park in winter 1888.

Grey Currawong *Strepera versicolor*

No longer recorded. Belcher observed "that an occasional bird may be found in winter or early spring at some distance from the breeding-haunts. (I have seen individuals at Dog Rocks, at Torquay, and even in the Eastern Park.)"

Little Raven *Corvus mellori*

Breeding resident. Flocks of up to 30 on occasions.
Belcher did not know this corvid by the name Little Raven, but rather by the all-embracing term "Crow" He makes no specific mention of corvids breeding in or even visiting the Park.

TABLE 1

List of birds which are regularly seen (but not necessarily common) in and over the Eastern Park.

a) **Throughout the Year**
- Australian Pelican
- Rufous Night Heron
- Australian Hobby
- Masked Lapwing
- Silver Gull
- Spotted Turtledove
- Laughing Kookaburra
- Skylark
- Welcome Swallow
- Blackbird
- Golden Whistler
- Grey Fantail
- Willie Wagtail
- Brown Thornbill
- Yellow-rumped Thornbill
- Yellow Thornbill
- Red Wattlebird
- Spotted Pardalote
- Silvereye
- House Sparrow
- Common Starling
- Australian Magpie-lark
- Grey Butcherbird
- Australian Magpie
- Little Raven

b) **During Autumn and Winter**
- Grey Goshawk
- Crimson Rosella
- Pink Robin
- Scarlet Robin
- Yellow-faced Honeyeater
- White-plumed Honeyeater
- White-naped Honeyeater
- New Holland Honeyeater
- Eastern Spinebill

c) **During Spring and Summer**
- Sacred Ibis
- Straw-necked Ibis
- Shining Bronze-Cuckoo
- European Goldfinch
- European Greenfinch

TABLE 2

Species recorded breeding during present study (December 1979 – December 1982).

+ Indicates species not recorded breeding by Belcher

° Indicates species which probably breed.

+ Masked Lapwings
+ Domestic Pigeon
+ Spotted Turtledove
Shining Bronze-Cuckoo
Laughing Kookaburra
+ ° Skylark
Welcome Swallow
+ Blackbird
° Scarlet Robin
Grey Fantail
Willie Wagtail
° Brown Thornbill
Yellow-rumped Thornbill
Yellow Thornbill
Red Wattlebird
° Spotted Pardalote
Silvereye
+ European Goldfinch
+ European Greenfinch
+ House Sparrow
+ Common Starling
Australian Magpie-lark
+ Grey Butcherbird
Australian Magpie
+ Little Raven

TABLE 3

Species recorded breeding in Eastern Park (1887-1912) by Charles Belcher.

a) **Found Breeding During Present Study (Dec 79-Aug 82)**
Shining Bronze-Cuckoo
Laughing Kookaburra
Welcome Swallow
Grey Fantail
Willie Wagtail
Yellow-rumped Thornbill
Yellow Thornbill
Red Wattlebird
Silvereye
Australian Magpie-lark
Australian Magpie

b) **Probably Bred during Present Study**
Scarlet Robin
Brown Thornbill

c) **Recorded during present study but not breeding.**
Painted Button-quail
Gang-gang Cockatoo
Pallid Cuckoo
Fantailed Cuckoo
Horsfield Bronze-Cuckoo
Sacred Kingfisher
White-winged Triller
Rufous Whistler
White-browed Scrubwren
White-plumed Honeyeater
New Holland Honeyeater
Dusky Woodswallow

d) **Not recorded during present study.**
Buff-banded Rail
Richard's Pipit
Jacky Winter
Rufous Songlark
Superb Fairy-wren
Speckled Warbler
Spiny-cheeked Honeyeater
White-fronted Chat
Masked Woodswallow
White-browed Woodswallow

TABLE 4

PARK STUDY 1979-1982: PERIODS OF OBSERVATION

YEAR	DATE	DURATION		WEATHER	TOTAL SPECIES
1979	4th Dec.	0915-1030 & 1050-1200	2hr 25min	Overcast, Humid	20
	6th Dec.	0910-1030 & 1100-1200	2hr. 20min	Cool, O/Cast	28
	7th Dec.	0900-1030	1hr30min.	Hot, Sunny	26
1980	10th Apr.	1545-1715	1hr 30min	Warm, Sunny	22
	29th Apr.	1550-1700	1hr 10min	Cool, Cloudy	24
	7th May	1300-1530	2hr 30min	Sunny, Cool Wind	21
	8th May	1545-1700	1hr 15min	Cool, O/Cast	27
	14th Aug.	1545-1700	1hr 15min	Cold, Windy	24
	17th Aug.	1715-1815	1hr	Cool, Calm	15
	31st Oct	0945-1020 & 1115-1140	1hr	Cool Breeze, Sunny	19
	1st Dec.	1305-1515	2hr 10min	Hot, Sunny	24
	2nd Dec.	0855-1015 & 1050-1140	2hr 10min	Cool wind, O/Cast	28
	3rd Dec.	0910-1015 & 1050-1200	2hr 15min	Sunny, Cool Wind	25
	4th Dec.	0900-1030 & 1055-1200	2hr 35min	Sunny, Cool Breeze-O/Cast	29
	8th Dec.	0900-1030 & 1110-1200	2hr 20min	Hot, Sunny.	26
	9th Dec.	0900-1010 & 1045-1200	2hr 25min	Hot Sunny	27
	11th Dec.	0905-1045 & 1115-1200	2hr 25min	Cool Breeze, O/Cast	29
1981	12th Apr.	1000-1300	3hr	Cool and Sunny	23
	21st Apr.	1540-1700	1hr 20min	Cool and Sunny	18
	12th Sept.	1330-1630	3hr	Fine	33
	1st Nov	1445-1845	4hr	Warm & Sunny	31
	2nd Nov.	1630-1700	30min	Fine & Hot	20
	7th Dec.	0930-1030 & 1100-1215	2hr 15min	Windy, O/Cast, Showers	23
	8th Dec.	0900-1200	3hr	Cool, O/Cast, Windy	25
	10th Dec.	0900-1200	3hr	Fine & Sunny	23
	11th Dec.	0900-1020	1hr 20min	Humid, O/Cast	20
	15th Dec.	0900-1030 & 1100-1215	2hr 45min	O/Cast, Sunny	22
1982	15th Feb.	1925-2010	45min	Very Warm & Humid	21
	13th Mar.	0815-1115	3hr.	Fine & Sunny	29
	10th Apr.	0800-1200	4hr	Fine & Sunny	32
	20th Apr.	1300-1500	2hr	O/Cast, mild	27
	12th June	1415-1700	2hr 45min	Cool, Sunny	37
	14th June	1245-1700	4hr 15min	O/Cast, Cool	33
	19th June	1410-1710	3hr	Fine Windy	34

34 formal observations sessions from 4th December, 1979 to 19th June 1982.

Total number of species observed during these sessions 71

Total number of hours: 76 hours

N.B. Daylight saving time applies from the last Sunday in October to first Sunday in March.

Discussion

From 1974 to December 1982, 90 species of birds have been reported in or over the Eastern Park. Table 1 lists the birds an observer may expect to see there, depending on the season.

Table 2 lists 21 species which were recorded breeding in the Park during the present study, and 4 species which probably bred. This list includes 12 species which Belcher did not record breeding.

Table 3 lists 35 species that Belcher recorded breeding in the Park in the 25 year period from 1887 to 1912.

There has been quite a significant change in the bird population of the Park since the time of Belcher. Ten of the species he reported breeding were not recorded during the present study, and twelve were recorded but apparently no longer breed there.

It would appear that the most significant factor would be the change in vegetation, as it is noticeable that where vegetation is more diverse, as in the Botanical Gardens and the School Grounds, there is a greater diversity of bird life. Belcher makes reference to a large lake which was situated in the Park between Ryrie Street and what is now Pitch 3. It was filled in some time between 1904 and 1914 (Pescott 1981). This no doubt led to the loss of such species as the Buff-banded Rail, the Rufous Songlark, and the White-fronted Chat from the Park.

Since Belcher's time, the Masked Lapwing, the Grey Butcherbird, the Little Raven and probably the Spotted Pardalote have become established and now breed in the Park. Of these four, the Grey Butcherbird is the only one Belcher makes specific reference to, commenting that it was an autumn visitor.

It is interesting to note that Belcher documented the establishment of the Yellow Thornbill and the Grey Fantail in the Park as breeding residents.

Despite the reduction in the number of breeding species, it is satisfying to know that so close to the centre of the city one can see such noteworthy species as the Grey Goshawk or the Pink Robin, or a roost of Night Herons.

Conclusion

It is apparent that continued systematic observation will add more species and breeding records, and the author would be pleased to receive further information. Nevertheless Eastern Park is already known to attract a large and diverse bird population although one could hope for more breeding species. Enrichment of the habitat, by planting more native flowering trees and shrubs, especially those which formed part of the original vegetation of the area, should improve the situation.

APPENDIX 1

RECORDS OF 34 FORMAL OBSERVATION SESSIONS

	1979			1980													1981										1982							
	DEC			APR		MAY		AUG		O	DEC						APR		S	NOV		DEC					F	M	APR		JUNE			TOTAL
	4	6	7	10	29	7	8	14	17	31	1	2	3	4	8	9	11	12	21	12	1	2	7	8	10	11	15	15	13	10	20	12	14	19	
Australian Pelican		x		x		x	x									x		x		x	x									x	x			x	11
Little Pied Cormorant												x								x												x	x	x	5
Little Black Cormorant														x		x	x											x							4
White-faced Heron			x														x				x											x	x		5
Rufous Night Heron																														x		x	x	x	4
Sacred Ibis		x											x	x	x		x			x	x		x	x	x	x									11
Straw-necked Ibis	x									x	x	x	x	x	x	x	x			x	x	x	x	x			x								15
Black-shouldered Kite				x																															1
Brown Goshawk																													x			x			2
Australian Hobby									x						x	x							x	x			x	x		x		x		x	10
Brown Falcon																	x			x															2
Australian Kestrel						x																							x						2
Stubble Quail		x																																	1
Masked Lapwing	x	x	x	x		x			x				x	x	x	x	x			x	x				x				x	x	x	x	x	x	20
Silver Gull	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	33
Pacific Gull												x																				x	x	x	4
Crested Tern			x								x	x															x	x				x	x	x	8
Domestic Pigeon	x		x	x			x			x					x							x			x										8
Spotted Turtledove	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	31
Diamond Dove																									x										1
Gang-gang Cockatoo				x	x		x	x	x											x															6
Galah																													x						1
Sulphur-crested Cockatoo			x															x	x																3
Musk Lorikeet				x																															1
Purple-crowned Lorikeet					x								x																						2
Crimson Rosella				x				x		x									x	x									x	x		x	x	x	10
Pallid Cuckoo																				x															1
Fan-tailed Cuckoo											x																								1

APPENDIX 1

	1979								1980														1981								1982			
RECORDS OF 34 FORMAL	DEC			APR		MAY		AUG		O	DEC							APR		S	NOV		DEC					F	M	APR		JUNE			TOTAL
OBSERVATION SESSIONS	4	6	7	10	29	7	8	14	17	31	1	2	3	4	8	9	11	12	21	12	1	2	7	8	10	11	15	15	13	10	20	12	14	19	
Shining Bronze-Cuckoo	x	x	x							x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x								19
Southern Boobook								x	x																										2
Fork-tailed Swift																												x							1
Laughing Kookaburra		x	x									x	x		x			x		x				x		x			x						10
Sacred Kingfisher		x																																	1
Rainbow Bee-eater																												x							1
Skylark		x	x													x	x			x	x				x					x	x	x	x	x	12
Welcome Swallow		x			x		x	x		x		x	x	x	x	x	x		x	x	x		x	x				x	x	x	x	x	x	x	23
Tree Martin																												x							1
Black-faced Cuckoo-Shrike			x								x	x		x	x	x	x	x			x			x					x	x	x				13
White-winged Triller																					x														1
Blackbird	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	31
Pink Robin					x		x	x										x	x											x		x	x		8
Flame Robin																														x					1
Scarlet Robin					x	x	x	x			x	x	x	x		x		x		x										x	x	x	x	x	16
Golden Whistler		x			x	x	x	x										x	x	x	x								x	x	x	x	x	x	15
Rufous Whistler										x	x	x	x	x	x	x	x				x	x							x						11
Grey Shrike-Thrush																																x	x	x	3
Satin Flycatcher														x																					1
Grey Fantail	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	33
Willie Wagtail	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	32
White-browed Scrubwren																																		x	1
Brown Thornbill		x					x					x	x	x				x	x		x		x	x		x	x		x	x		x	x	x	17
Yellow-rumped Thornbill	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	33
Yellow Thornbill					x	x		x	x			x	x	x			x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	24
Red Wattlebird	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	34
Yellow-faced Honeyeater				x	x	x	x	x	x																					x	x	x	x	x	11
White-plumed Honeyeater																													x	x		x			3

APPENDIX 1	1979									1980														1981								1982			
RECORDS OF 34 FORMAL	DEC			APR		MAY		AUG		O	DEC							APR		S	NOV		DEC					F	M	APR		JUNE			TOTAL
OBSERVATION SESSIONS	4	6	7	10	29	7	8	14	17	31	1	2	3	4	8	9	11	12	21	12	1	2	7	8	10	11	15	15	13	10	20	12	14	19	
White-naped Honeyeater							x																								x	x	x	x	5
Eastern Spinebill					x		x	x																					x	x	x	x	x	x	9
Mistletoe bird																															x				1
Spotted Pardalote			x	x			x	x		x	x			x		x	x	x		x	x	x							x	x	x	x	x	x	19
Striated Pardalote					x										x							x													3
Silvereye	x	x	x		x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	31
European Goldfinch	x	x	x		x	x	x	x		x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x		x	28
European Greenfinch	x	x	x				x			x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x								20
House Sparrow	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	32
Tree Sparrow		x										x																							2
Common Starling	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	33
Australian Magpie-lark	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	32
Grey Butcherbird	x	x	x	x				x	x	x	x		x	x			x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		26
Australian Magpie	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	34
Little Raven	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	x		x	x	x	31
Total Number of Species	20	28	26	22	24	21	27	24	15	19	24	28	25	29	26	27	29	23	18	33	31	20	23	25	23	20	22	21	29	33	27	37	33	34	
Observer/s	S	S	S	S	S	A	S	S	A	A	S	S	S	S	S	S	S	C	A	P	A	A	S	S	S	S	S	A	A	A	A	A	A	A	

Key to Observers

S Author assisted by students
A Author
C Margaret Cameron
P Members of Geelong Field Naturalists Club led by Trevor Pescott

Appendix 2: Sir Charles Belcher M.A. LL.B. O.B.E.

Born on 11th July 1876 near Geelong he was educated at Geelong Grammar School, and the University of Melbourne.

In April 1905 he was one of a group of fifteen who founded the Bird Observers Club. His book *The Birds of the District of Geelong, Australia,* published in 1914, still ranks as one of the finest field books ever published on Australian birds.

In many ways the name Charles Belcher is synonymous with bird study in the Geelong area, where his devotion to bird study began as a boyish egg collector, and as a young man he began contributing papers to local publications recounting his field observations.

Sir Charles Belcher died on February 27th, 1970 in South Africa in his 94th year.

Appendix 3: History of Eastern Park

J.F. Strahan and David Fisher established the Botanical Gardens of 200 acres in 1849.

The eighteen-sixties was a period of activity in acclimatisation. Towards the end of 1863, when the Acclimatisation Society was already working in Melbourne, a meeting was held to consider the formation of a Geelong branch. One of the conveners, Alfred Douglas, believed the first effort should be put into the introduction of such singing birds or thrushes, larks, linnets, blackbirds, bullfinches, greenfinches and canaries.

The Acclimatisation Society undertook to build an aviary in the Botanical Gardens in 1864. Trustees believed it would be an attraction and would promote the rearing of "singing birds".

The first contribution of six canaries was given by John Holmes of Geelong.

Emus lived there rather unhappily and roamed in search of better quarters.

David Burce the first curator of the Gardens tried to promote a variety of bird life in the Botanical Gardens and gave Skylarks, Bluebirds, Finches, Thrushes and Sparrows sanctuary with the result that people took birds to him for release in the Gardens.

Appendix 4: Student participants

Keith Blackney
Ross Bowditch
Con Daglas
Andrew Dickson
Phillip Earl
Bradley Ferrier
John Gulino
Rolf Herzer
Darren Jeffs
Loukas Kanellos
Bill Kuluris
Craig McKay
Angela Morrison
Bruce Mullinder
John Mullinder
Geoff Nicol
Peter Sims
Michael Solly
Calum Storrar
Peter Williams
Adam Wilson

Acknowledgments

I wish to thank those students of the Geelong High School (Appendix 4) who assisted in the study, and all other observers who contributed records, especially Grant Baverstock. I am grateful to Roger Thomas and Joe Mack for their helpful criticism of an earlier draft.

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Craig Morley, 22 Fairmont Rd., Newtown, 3220.

HOUR COUNT No. 42

Centennial Park, Sydney N.S.W.

Roy Wheeler

Centennial Park is unique, it being only two miles from the centre of Sydney. It is situated in the heart of the eastern suburbs of Randwick, Waverley and Woollahra. It covers 219 hectares (540 acres) and has a number of lakes which provide excellent water-fowl habitat. Centennial Park was "dedicated to the enjoyment of the people of New South Wales for ever" on Thursday 26th January 1888 by Lord Carrington, during the Centenary Celebrations of the colony.

Prior to the development of the Park in 1887, the area was known as "Lachlan Swamps" and was Sydney's main water supply from 1837 to 1859. Water was piped by an underground bore known as Busby's Bore in recognition of the engineer John Busby. Excavation work on the bore was commenced in 1827, and it passed 60 feet (18 metres) beneath the Victoria Army Barracks and terminated in Hyde Park, being completed in 1837. Centennial Park is under the control of the Premier's Department and is extensively planted with trees of many exotic species, many being over 90 years old. Some of the fig trees are enormous.

As it can be imagined there is a great demand on the park to provide playing areas. It has rugby, soccer, hockey, basketball and cricket fields, as well as areas set aside for horse riding, cycling, model aeroplanes, etc. It is a wonderful area for family picnics, and barbecue facilities have been provided. Bird watching is also a very important recreation, and a booklet *The Wildlife of Centennial Park, Sydney,* by the Gould League of New South Wales, is available and contains a bird list of 124 native and 18 introduced species. Of this total 36 native and 8 introduced species have bred in the Park. In December 1980 I was staying at Randwick and in close proximity to the Park, so paid it several visits and did some hour counts.

Centennial Park, Sydney, N.S.W. From the shore of one of the larger lakes. December 23, 1980, from 10.50 to 11.50 a.m. Fine but mostly cloudy with a warm northerly blowing. One observer Roy Wheeler. Birds in order of sighting:

Black Duck, 24; Australian Pelican, 1; Little Pied Cormorant, 8; Australian Coot, 400; Dusky Moorhen, 20; Southern Figbird, 4; Swamphen, 40; Silvereye, 3; Indian Myna, 35; Spotted Turtle-dove, 16; Starling, 20; Feral Pigeon, 20; Silver Gull, 30; Willie Wagtail, 6; Pied Currawong, 1; Musk Duck, 5; Little Grebe, 1; Black Swan, 3 with cygnets; Grey Butcherbird, 2; Welcome Swallow, 6; House Sparrow, 5; Mallard, 2; Great Black Cormorant, 4; Little Black Cormorant, 1; Red-whiskered Bulbul, 2 and Raven, 1.

Total 26 species and 550 individuals.

Another hour count at another lake an hour or so earlier added Wood Duck, White Cockatoo, Magpie-lark, Australian Magpie, Noisy Miner, White-eyed Duck and Crested Pigeon. Other species seen on other visits were Blue Wren, White-plumed Honeyeater, Blackbird, Red-browed Finch, Reed Warbler and Black-faced Cuckoo-shrike making my total at Centennial Park 39 species.

My grateful thanks to Miss Mary O'Connor for her hospitality and for getting the brochures for me.

Roy Wheeler, 59a Upton Road, Windsor. Vic. 3181.

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C. [illegible]

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EDITORIAL

The devastating fires of Ash Wednesday horrified and shocked us all. Apart from the tragic loss of human life and the destruction of homes and property, the bush we love is a wasteland. The thousands of birds found dead on local beaches must be only a tiny proportion of those who perished. The injured wallabies and the few surviving bandicoots, possums and echidnas we find in or near the burnt area remind us how many must have died. Yet the bush is resilient, and already plants are beginning to grow again. Studies in other parts of Australia have shown that some plants actually rely on an occasional very intense fire to survive and flourish! It is up to naturalists and scientists to study the effects of the fire and its short and long term effects on our flora and fauna, so that we are in a position to give well-informed advice to government at all levels on fire control and the conservation of our beautiful bush and its animal inhabitants, and so that as citizens we can participate productively in local decision-making on these important questions.

On a more cheerful note, April saw the publication of Trevor Pescott's long-awaited book *Birds of Geelong.* It is not necessary to write a review of this book, beyond saying that for everyone even remotely interested in the birds of Geelong and its countryside, swamps, beaches and coast, forest, heath and grassland, this book is essential. Congratulations, Trevor!

The Effect of a Wildfire on Birdlife in a Eucalypt Forest: a Preliminary Report on the Lerderderg Gorge seven weeks after the Wombat State Forest fire

Marilyn Hewish

In 1982, I became a contributor to the Rolling Bird Survey, organized by Professor J.M. Cullen and conducted by the Royal Australasian Ornithologists Union. This survey has been designed to follow changes in the abundance of common Australian bush birds. Each contributor undertakes to record the bird species observed at survey points along a selected survey route, on at least five occasions in a three month period in successive years. The survey route I chose was in the Lerderderg Gorge in the Blackwood Ranges, approximately 50km north-west of Melbourne.

Two surveys had been completed in December, when, on 8th January 1983, the Gorge was burnt out in a bushfire which destroyed 11,000 hectares of the surrounding Wombat State Forest. Thus was provided an ideal opportunity to continue the survey with the aims modified to determining the effects of the bushfire on birdlife. Previous research on the subject, done mainly in Western Australia, has documented the regeneration of forest and wildlife after controlled burns designed to reduce undergrowth and litter (Christensen and Kimber, 1975; Wooller and Brooker, 1980). Little information is available on the effects of wildfires, with their more intense heat, more severe fire damage, and larger area of destruction.

Thus a detailed survey in the Lerderderg Gorge promised to give detailed information in two areas:

1. the immediate effects of a wildfire upon birdlife
2. the return of bird species to burnt areas, and its dependence upon the time elapsed after the fire and the regeneration of the forest.

Methods:

The methods developed for the R.A.O.U. Rolling Bird Survey were ideal for the project, as they have been designed to detect changes in bird abundance (Cullen, 1980). In this case the chosen survey route was the first 1.5km of the walking track into the Lerderderg Gorge, from the parking area at the entrance. Ten survey points were chosen along the route, each at least 150m from the last. Surveys were conducted by recording every bird species seen or heard in a five minute halt at each survey point. No attempt was made to assess the numbers of each species. All walks took place between 8 a.m. and 9.30 a.m. approximately.

This is very similar to the transect method used in the Western Australian study on birdlife after a fire (Christensen and Kimber, 1975). The two surveys already completed before the fire were used as a baseline to indicate the pre-fire distribution and abundance of bird species. Changes in abundance were then followed by surveys at approximately one-month intervals after the fire.

The Lerderderg Gorge (Land Conservation Council, 1973)

The Lerderderg River is one of the main rivers draining the southern Wombat State Forest, and has formed the steep-sided Lerderderg Gorge in the Blackwood Ranges. The soils are shallow and stony. The vegetation is open forest. The upper level consists of trees less than 15m high: various eucalypts, including Broad-leaved and Narrow-leaf Peppermint *Eucalyptus dives* and *E. radiata,* Red Stringybark *E. macrorhyncha,* Long-leaf Box *E. goniocalyx,* stunted Candlebark *E. rubida* and Eurabbie *E. st. johnii.* There is a rich understorey of small wattles, Bush-peas, Goldfields Grevillea *Grevillea dryophylla,* Bushy Needlewood *Hakea sericea,* Rosy Baeckea *Baeckea ramosissima,* Prickly and Heath Tea-tree *Leptospermum juniperinum* and *L. myrsinoides,* Guinea-flower *Hibbertia* sp., Heath *Epacris* sp., and Tussock Grass *Poa australis.* Blackberry is a problem weed.

The average annual rainfall is approximately 600mm. With the prevailing drought conditions at the time of the fire, water in the Gorge was restricted to a few shallow pools.

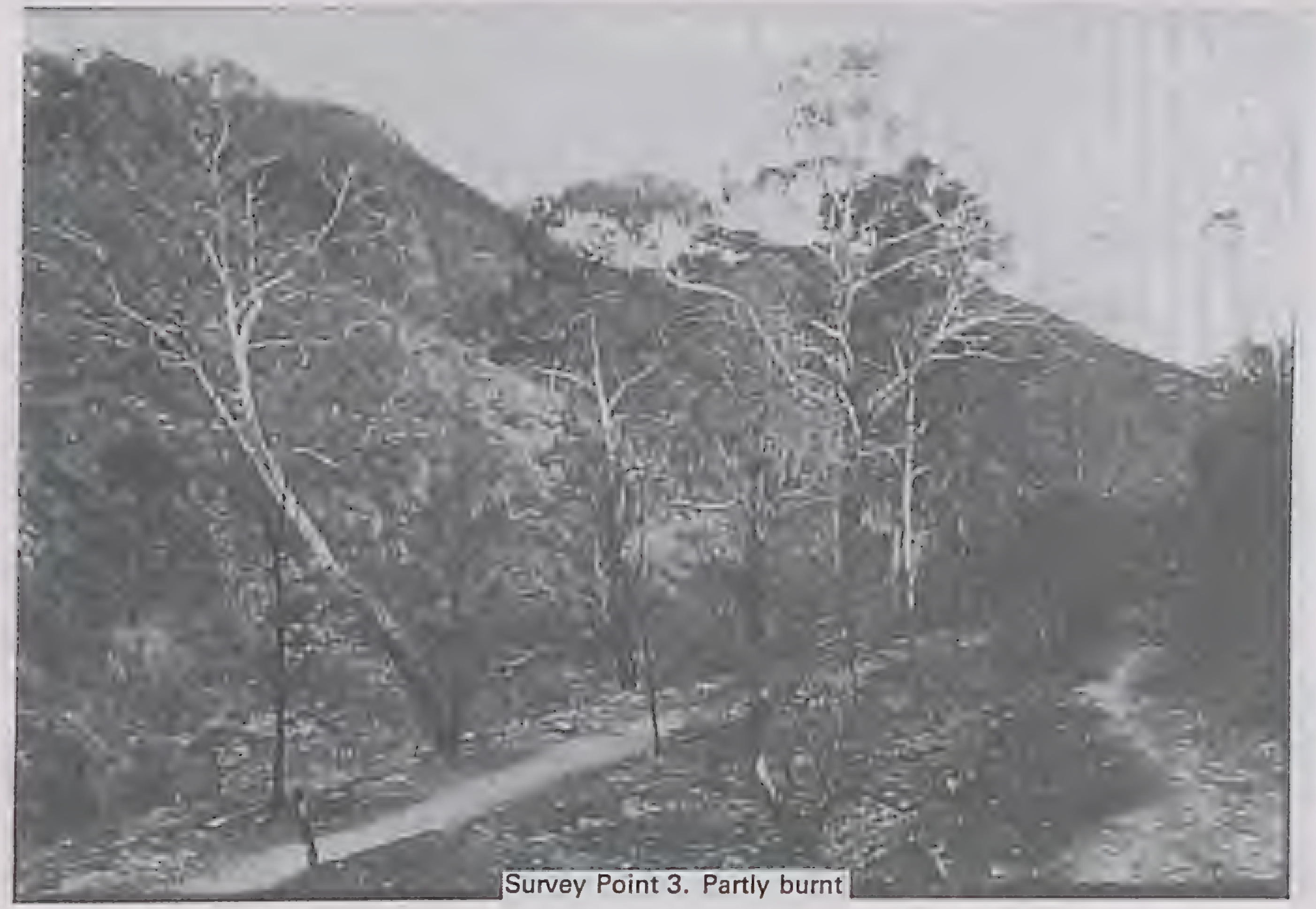
Before the fire, birdlife was abundant and diverse, attracted by the varied vegetation and permanent water in the Gorge.

Fire damage in the Gorge

Three weeks after the fire, a survey was conducted and, at the same time, the damage done by the fire was assessed. Along the survey route there was a gradient of the severity of fire damage.

The fire had not reached the entrance of the Gorge, and so survey point 1 was unburnt. At survey points 2 and 3, the Gorge was burnt only on the same side as the track. At the survey points 4 to 6, patches of green forest canopy or undergrowth remained in the burnt forest. Survey points 7 to 10 were severely burnt. Thus, unburnt, fringe, and severely burnt areas could be compared in each survey.

The Gorge floor was, on average, more protected during the fire than the ridges and slopes, where the most severe fire damage occurred. As the survey route passed along the Gorge floor it included a high proportion of fringe or partly burnt areas. Although reduced by the drought, the few remaining pools protected undergrowth around them, leaving oases of green foliage. Before the fire, pools had been deliberately chosen as survey points, because they were constant and readily recognizable markers.



Survey Point 3. Partly burnt

Therefore, in fringe areas, this selection process favoured less damaged areas.

The possible importance of patches of unburnt vegetation for the survival and regeneration of wildlife has been discussed (Gill, 1975). They may provide protection for resident birds and those from surrounding areas during the fire. After the fire they may provide food and shelter for those species which cannot obtain them in burnt forest. It has been suggested that flora and fauna in these patches could become isolated in an island ecology, depending on the distances between them. These oases could serve as sources for recolonization, with birds surviving in them moving out into the surrounding forest as it regenerated. The bird survey of the fringe areas and adjacent burnt areas could give information on this movement.

In the severely burnt areas all undergrowth had been obliterated and the upper foliage canopy had been completely scorched, or even destroyed. A layer of fine ash covered the ground. The path had been undermined where roots had been burnt into the ground and some of the holes were still smoking three weeks after the fire. There was a constant rattle of small landslips down steep slopes where retaining growth had been burnt away.

Regeneration of flora

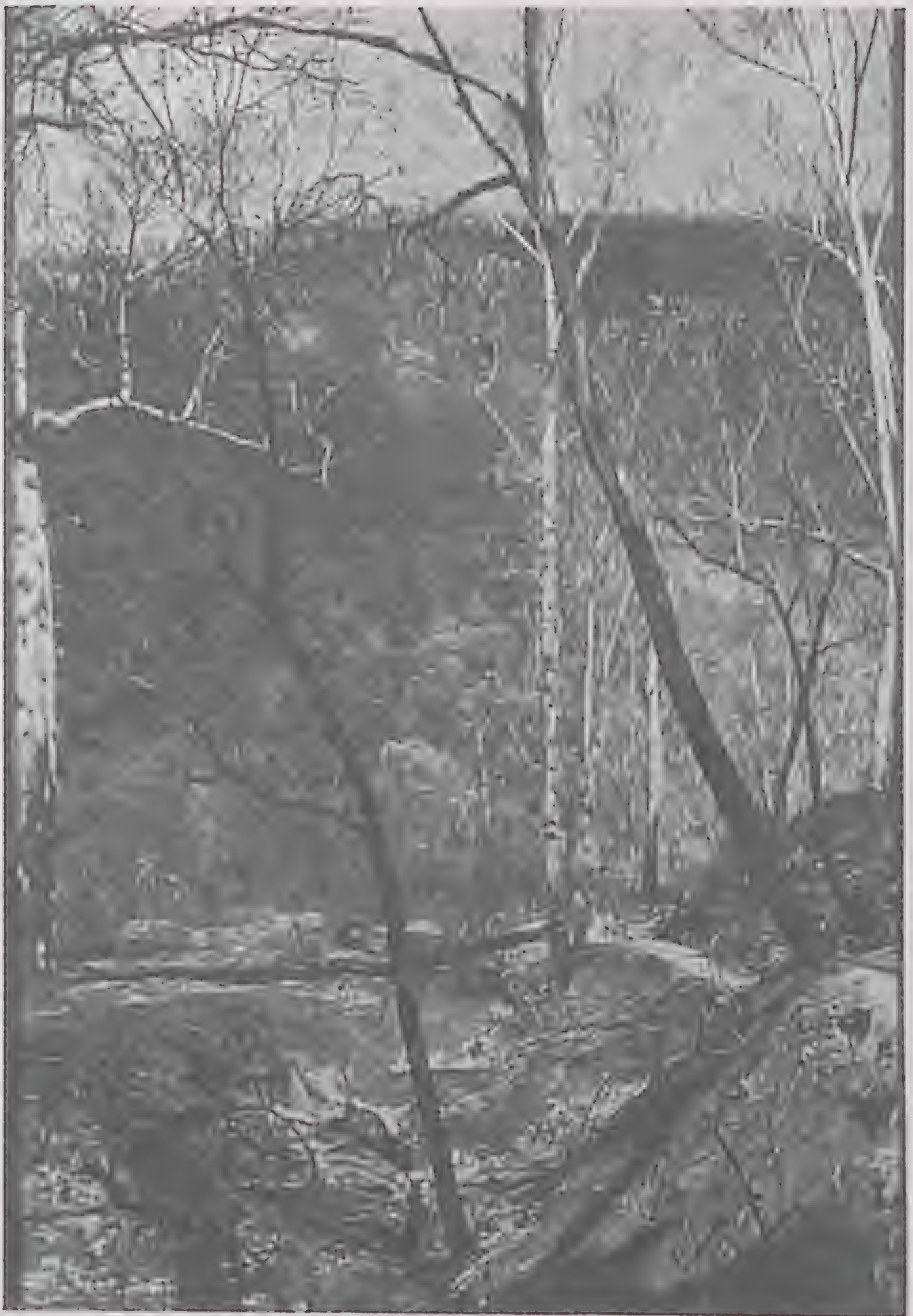
The regeneration of dry eucalypt forest after wildfire can be remarkably swift (Recher et al, 1975). The pattern of revegetation depends upon fire intensity, with germination from soil-stored seed predominating after intense fires, and from root stock after milder fires (Christensen and Kimber, 1975). Three weeks after the fire in the Gorge, there was no visible regrowth. Seven weeks after the fire, bracken, flax-lily *(Dianella* sp.*)* and blackberries were sprouting from burnt ground. Acacias showed new leaves sprouting from scorched branches, and small seedlings were growing out of burnt ground. Epicormic growth was seen at the bases and on the trunks and branches of eucalypts.

Christensen and Kimber (1975) demonstrated the importance of epicormic growth in the re-establishment of some bird species in burnt forest. Some species which had disappeared after a fire, were seen in epicormic growth upon their return. Blackberries, too, were growing: Recher et al (1975) have commented on the rapid regrowth of weeds in the forest after the Nadgee wildfire.

Effects of fire on birdlife

Four bird surveys have been completed—two baseline surveys at five and three weeks before the fire, and two surveys at three and seven weeks after the fire.

Thus far only the immediate effects of the fire have been noted. The survey results are shown in Table 1. To allow comparisons between



Survey Point 8. Severely burnt.

TABLE 1: Number of survey points at which bird species recorded before and after wildfire.

DATE	4-12-82			19-12-82			8-1-83		29-1-83			26-2-83		
WEEKS BEFORE OR AFTER FIRE	-5			-3			0		+3			+7		
FIRE DAMAGE	A ①			A			A		A	B	C	A	B	C
SURVEY POINTS	1 (1)	2→6 (5)	7→10 (4)	1 (1)	2→6 (5)	7→10 (4)			1 (1)	2→6 (5)	7→10 (4)	1 (1)	2→6 (5)	7→10 (4)
Black cormorant									0	0	1			
White-faced heron				x								x		
Brown goshawk				x										
Black falcon												x		
Spotted dove									1	0	0			
Sulphur-crested cockatoo	0	1	4	1	5	1	x	FIRE	1	4	3	1	5	2
Crimson rosella	1	4	3	0	2	0	x		1	3	0	1	2	1
Fan-tailed cuckoo	0	0	1				x							
Golden bronze cuckoo				0	0	1								
Kookaburra	0	1	1	0	1	0	x					0	3	0
Sacred kingfisher	0	1	2	0	3	2								
Welcome swallow	1	5	3	0	1	0	x					0	1	0
Blackbird	1	0	0	0	1	0								
E. yellow robin	0	1	1	1	2	0	x		0	3	2	0	1	2
Golden whistler	0	1	2	0	2	2	x		0	3	0	0	1	0
Rufous whistler	1	3	2	1	2	1	x		x					
Grey shrike-thrush	1	2	4	0	2	3	x		1	4	4	1	2	2
Grey fantail	1	5	4	0	5	2			0	1	0			
Superb fairy wren	1	4	1	0	2	1	x		1	5	4	0	4	3
White-browed scrubwren									0	4	2	0	2	2
Speckled warbler														

Brown thornbill	0	1	1				x					1	0	0
Striated thornbill							x		0	1	0	0	0	1
White-throated treecreeper	0	1	1	0	1	3	x		0	2	4	1	4	1
Yellow-faced honeyeater	1	5	3	1	5	3	x							
Yellow-tufted honeyeater	0	1	1	0	5	1	x		0	2	0	1	0	0
Brown-headed honeyeater				0	0	2								
New holland honeyeater	0	1	0	1	1	1	x							
Eastern spinebill	0	1	0	1	1	0						1	1	0
Spotted pardalote	0	2	1											
Striated pardalote				1	2	0								
Silvereye	0	1	1	0	1	2	x		1	0	0		x	
Goldfinch	0	1	0											
Red-browed firetail		x ②					x							
Australian magpie	1	2	1	1	2	0	x		0	1	1	1	1	2
Grey currawong		x		0	2	1	x		0	1	0	1	3	0
Australian raven									1	0	0			
Little raven				1	3	0	x		1	1	0			
All honeyeaters	1	5	3	1	5	3			0	2	0	1	1	0
All whistlers	1	3	3	1	4	2			0	3	0	0	1	0
All thornbills	0	1	1	0	0	0			0	1	0	1	0	1
All pardalotes	0	2	1	1	2	0								
SPECIES	9	21	19	9	22	15			8	14	8	9	13	9
SPECIES / SURVEY POINT (AVERAGE)	9	9	9	9	10	7			8	7	5	9	6	4
SPECIES / SURVEY	25			26					20			19		

1. FIRE DAMAGE: A – unburnt; B – fringe area, partly burnt; C – severely burnt.
2. x indicates that species recorded outside survey time. These records are included in the total species/survey figures.

unburnt, fringe, and burnt areas, results from survey points within each type of area have been combined, thus:

1. Survey point 1: unburnt
2. Survey points 2 to 6 (5 survey points): fringe area, partly burnt
3. Survey points 7 to 10 (4 survey points): severely burnt.

The pre-fire data have been arranged similarly, to allow direct comparison between groups of survey points.

Included in the table of results is a bird list from the Lerderderg Gorge, recorded on the morning before the fire, 8th January 1983. No survey was done, as the very strong northerly winds made birds difficult to observe, and only part of the survey route was covered. Therefore the species count cannot be compared to those obtained on survey walks. Nevertheless, the list confirms the presence of many of the common species immediately before the fire.

Diversity of bird species

The fire caused an immediate reduction in the diversity of bird species in the forest. The pre-fire surveys recorded total species counts of 25 and 26, including species recorded outside survey times. The post-fire counts were 20 and 19. There was a marked reduction in species diversity from unburnt to fringe and burnt areas. After the fire, the count at unburnt survey point 1 remained at the pre-fire level. The average species count per survey point across the fringe area was slightly reduced, and in the severely burnt areas it was markedly reduced. This immediate effect has been noted after an intense burn in karri forest (Christensen and Kimber, 1975).

Common birds in burnt areas

In the survey at three weeks after the fire, it was immediately apparent that birds were abundant in even the most severely burnt areas, but that only a few species were present. This is shown in Table 1, column C, in the post-fire records. The birds recorded were as follows:

1. Sulphur-crested Cockatoo *Cacatua galerita*
   Flocks were seen regularly flying south along the Gorge. As surveys were conducted in the early morning, and these birds make regular morning flights from roosting to feeding areas *(Reader's Digest Complete Book of Australian Birds,* 1976), it was assumed that their abundance was not related to the fire.
2. Eastern Yellow Robin *Eopsaltria australis*
   Solitary birds were abundant in burnt areas, usually on the ground or perched on low branches. 2-3 birds were seen at each of the three partly burnt survey points, and two severely burnt points, and others were seen between survey points.

3. Grey Shrike-thursh *Colluricincla harmonica*
   These birds were heard all through the burnt areas, and a few were seen perched on low burnt shrubs.
4. Superb Fairy-wren *Malurus cyaneus*
   Small parties were abundant, hopping over bare ground in burnt areas.
5. White-browed Scrubwren *Sericornis frontalis*
   These birds were commonly seen hopping over bare ground in burnt areas, either singly or in small parties. They were not recorded in pre-fire surveys. This may be because they were not visible, due to their preference for thick undergrowth (*Reader's Digest Complete Book of Australian Birds,* 1976), and does not necessarily imply a post-fire increase in numbers. The effect of loss of undergrowth and increased visibility on bird sightings has been discussed previously (Christensen and Kimber, 1975).
6. White-throated Treecreeper *Climacteris leucophaea*
   These birds were heard all through burnt areas, and seen spiralling up the blackened trunks of burnt eucalypts. Here again, birds were more easily seen than before the fire, because of the reduced foliage cover.

Christensen and Kimber (1975) have also reported increased numbers of robins (Scarlet, Western yellow, and White-breasted) and Grey Shrike-thrushes, five months after a fire in karri forest.

There are two reports of decreased numbers of Red-winged Fairy-wrens when surveys were made several months after fire (Christensen and Kimber, 1975; Wooller and Brooker, 1980). This is in contrast to the abundance of Superb Fairy-wrens in the Lerderderg Gorge three weeks after the fire, and may reflect the different habitat preferences of the two species. Superb Fairy-wrens prefer broken undergrowth and clear spaces, and thus can tolerate the open ground of burnt areas. Red-winged Fairy-wrens inhabit deep undergrowth, which is destroyed by fire (Schodde, 1982).

These two Western Australian studies also demonstrated increased numbers of Rufous Treecreepers several months after a fire. These birds were seen on the peeling bark of burnt trees (Christensen and Kimber, 1975) as were the White-throated Treecreepers of Lerderderg Gorge.

Christensen and Kimber (1975) reported that the White-browed Scrubwren disappeared in the first year after a fire. When it returned in the second year, it had changed its preferred habitat to the shrub and understorey level, where it was especially attracted to epicormic growth. It is difficult to reconcile these results with the apparent abundance of the species in the Lerderderg Gorge. They have remained ground-feeders, although preferring open ground far from cover, rather than their usual habitat of thick undergrowth. Later, however, when epicormic growth is more established, they may move upwards.

Recolonization of the burnt area by birds occurred very quickly, even before the smoke had cleared. The origin of these birds is unknown. In the severely burnt areas, there was no shelter for birds during the fire. Either the original residents escaped by flight and returned after the fire, or the area has been recolonized by birds from unburnt and fringe areas. Banding studies cannot be done before wildfires. Those done before controlled burns have shown that some birds remain in the same area after a fire (Wooller and Brooker, 1980), but the low intensity of controlled burns may make these findings inapplicable to wildfires.

Birds absent after the fire

Decreased abundance after the fire was most readily detected in those species which were common before the fire, and was noted in the following:

1. Whistlers *Pachycephala* spp.

   Golden and Rufous Whistlers were commonly recorded before the fire. Post-fire there was a drop in abundance, most marked in the severely burnt area, but also noticeable in the unburnt and fringe areas.

   Rufous Whistlers were most severely affected, being recorded at 10 out of 20 survey points before the fire, and only once after the fire. Before the fire Golden Whistlers were concentrated at the far end of the survey route. This area was severely burnt, and after the fire, none were observed there. Their numbers were, however, unaffected in the fringe area.
2. Grey Fantail *Rhipidura fuliginosa*

   A very common bird along the survey route before the fire (17 out of 20 survey points), it suffered a dramatic decline after the fire. This was marked in all areas: unburnt, fringe, and severely burnt. The single sighting after the fire was in a dense pocket of shrubs around a pool at survey point 6. However, this change in abundance may not be entirely due to the fire, as none were observed on 8th January.
3. Honeyeaters

   Before the fire, honeyeaters were very common (18 out of 20 survey points). After the fire, there was a marked decrease in numbers in both fringe and severely burnt areas.

   This was most dramatic for the previously very common Yellow-faced Honeyeater *Lichenostomus chrysops,* which has been absent since the fire. The Yellow-tufted Honeyeater *Lichenostomus melanops,* although reduced in numbers, has been recorded in fringe areas since the fire.
4. Pardalotes *Pardalotus* spp.

   Pre-fire records were somewhat sparse (6 out of 20 survey points) but consistent, and so their absence after the fire is noteworthy.

The disappearance of honeyeaters and whistlers after fire has been noted previously (Christensen and Kimber, 1975).

Caution must be exercised in interpreting the abrupt disappearance of some species after the fire. Most Yellow-faced Honeyeaters and Rufous Whistlers migrate north from south-eastern Australia in March-April *(Reader's Digest Complete Book of Australian Birds,* 1976*).* As both species were recorded in the Gorge immediately before the fire, early migration did not cause their decline. It is possible, however, that a catastrophic occurrence, such as the fire, could trigger early movement from the area. This could explain why these two migratory species declined so dramatically after the fire, in even fringe and unburnt areas. There was no similar mass exodus of the related, but non-migratory, species, the Yellow-tufted Honeyeater and the Golden Whistler. They were recorded in fringe areas after the fire, although they were absent from severely burnt areas. If Yellow-faced Honeyeaters and Rufous Whistlers do not return to burnt areas until the spring following the fire, it would suggest that early migration occurred. Until then, their absence cannot be related to the degree of fire damage in the Gorge.

Other birds

1. Crimson Rosella *Platycercus elegans*
   A common bird along the survey route five weeks before the fire, it was sparsely recorded at three weeks. This variation made any reduction in records after the fire difficult to interpret. However, at three weeks post-fire, it seemed to concentrate in the unburnt and fringe areas, while at seven weeks, its distribution was more uniform.
2. Sacred Kingfisher *Halcyon sancta*
   This species was abundant in the two pre-fire surveys, and absent after the fire. However it was not recorded on a walk through the Gorge on the morning before the fire, 8th January, and so its absence may be unrelated to the fire.
3. Welcome Swallow *Hirundo neoxena*
   Although common in the survey five weeks before the fire, it was recorded only once in the survey three weeks pre-fire. Variations in abundance may be caused by factors unrelated to the fire, and so no conclusions can be drawn.
4. Thornbills *Acanthiza* spp.
   Records before and after the fire were sparse and scattered. There was no evidence for a post-fire increase in numbers, as noted for the Broad-tailed Thornbill by Christensen and Kimber (1975), although this species is closely similar in habits and habitat to the Brown Thornbill of Lerderderg Gorge. As this increase was noted at five months post-

fire, however, more time may have to elapse before comparisons can be made with the Lerderderg Gorge study.

5. Australian Magpie *Gymnorhina tibicen*
   The pre-fire records were again sparse but consistent. There seems to be no post-fire decrease in numbers.

For other species recorded before the fire, data were too sparse for conclusions to be drawn about the effects of the fire on their abundance.

Factors affecting presence and absence: the importance of diet and feeding habits

Of the five species of birds commonly recorded in severely burnt areas, four were insectivorous ground-feeders – Eastern Yellow Robin, Grey Shrike-thrush, Superb Fairy-wren, and White-browed Scrubwren *(Reader's Digest Complete Book of Australian Birds,* 1976*).*

Although the general abundance of insects decreases after a fire, this is not uniform, and some species may become more prevalent (Springett, 1976). Ground insects would certainly be more visible and accessible to predators, after the loss of undergrowth and ground litter caused by fire. This is confirmed by the behaviour of the birds of Lerderderg Gorge. Insects must have been abundant on burnt, open ground, and insectivorous birds moved in immediately to take advantage of the available food. After the Nadgee fire, Recher et al (1975) observed multiple nesting in insectivorous birds, and concluded that insects must be abundant.

The White-throated Treecreeper is an insectivore, which feeds on the surface or in crevices of bark. Its main item of diet is ants *(Reader's Digest Complete Book of Australian Birds,* 1976*).* As these are both ground and tree-trunk insects, they may be a common factor attracting the treecreepers and the ground-feeding birds. Of those birds absent after the fire, whistlers, honeyeaters and pardalotes are foliage-feeders. As the canopy was completely scorched or absent in the burnt areas, it would appear that the food supply was inadequate for either insectivores (whistlers, pardalotes) or nectar-and insect-eaters (honeyeaters).

The absence of the Grey Fantail is more puzzling. It feeds on insects taken on the wing. As bats have been observed in severely burnt areas approximately three weeks after a fire (L. Conole, pers. comm.), it would seem that flying insects are abundant. This may reflect the fact that the different insect species favoured as food by birds and bats are differently affected by a fire. Here, however, habitat may be of primary importance. Grey Fantails are found mainly in the lower levels of undergrowth and shrubs (*Reader's Digest Complete Book of Australian Birds,* 1976), and the burnt areas may be too open for them. It is suggestive that the single sighting of a Grey Fantail since the fire was in a pocket of dense, unburnt shrubs around a pool.

Discussion

The immediate changes in the forest and its birds after a fire have been studied. The initial damage was severe, including destruction of undergrowth and foliage, and the loss of several bird species, especially foliage-feeders, from the area. However, some bird species were able to take advantage of conditions in burnt areas immediately after the fire, and flourished on the increased availability of their insect food. These species may be expected to be very successful in their next breeding season.

Much of the Australian flora is adapted to enable it to regenerate rapidly after a fire (Christensen and Kimber, 1975) and some regeneration was noticed at seven weeks in the Lerderderg Gorge. Further regeneration of foliage should attract tree-feeding birds back into the area. A fire causes the release of nutrients into the soil and an increase in the productivity of a forest. On regrowth, there is a surge in the vegetation, animal and bird populations (Recher et al, 1975). Therefore long-term damage from a single bushfire should be minimal. Under certain conditions, however, fire may cause long-term changes in a forest (Gill, 1975).

Fire intensity can influence the vegetation pattern in the forest. Those plants in which seed germination is promoted by heat are favoured in regrowth after intense fires (Christensen and Kimber, 1975).

Frequent fires can lead to a loss of nutrients from the soil and a reduction in the productivity of the forest. They favour the regrowth of weeds and grasses, and colonization by grassland and introduced birds.

Seasonal factors may influence regeneration after fire. If heavy rain falls before ground cover is re-established, severe erosion of ash and soil can result. This could permanently inhibit regrowth. This could be a problem in the Lerderderg Gorge, where the steep, stony slopes with shallow soil were at high risk from erosion even before the fire (Land Conservation Council, 1973). Many landslips were observed three weeks after the fire in burnt areas. Landslides, fallen tree trunks and debris could cause blockages, flooding and accumulation of silt when the river flows again. This, too, would affect the pattern of regrowth.

This study is continuing, hopefully to follow the return of birds to the regenerating forest, and to monitor any long-term changes in the area.

Acknowledgments:

I should like to thank Professor J.M. Cullen for helpful advice, and David Peters and Margaret Cameron for constructive criticism of the manuscript.

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Footnote:

During the writing of this article, 88mm of rain fell on Bacchus Marsh in three days. The Lerderderg River was in flood, and at the entrance of the Gorge, the water was brown with silt. Fears of erosion may be realised.

Marilyn Hewish, 74 Wellington St., Bacchus Marsh, 3340.

Beach-washed Birds after the Ash Wednesday Fire

Trevor Pescott

Over the weekend of 19-20 February 1983, following the huge wildfire that swept along the coast from East Lorne to Point Addis, large numbers of bush birds were found beach-washed.

The following lists were made:

1. Fairhaven to Airey's Inlet. 0.75 km (21st February) Pauline Reilly. Most birds were in debris at the high tide mark. Some were maggot-ridden at this stage – five days after the fire; others (particularly the smaller passerines) were desiccated.
2. Hutt Gully and 300 m to the west. (20th February) Trevor Pescott.
3. Point Addis to Red Rock. 1 km. approx. (20th February). Lauris and Geoff Mathison.
4. Jarosite Beach, full length 1.5 km. approx. (21st February) Lauris and Geoff Mathison.
5. Fisherman's Beach. 1 km. approx. (20th February) Valda Dedman and G.F.N.C. members.
6. Point Impossible Beach towards White's Beach. (20th February) Ray Hodge.
7. Bancoora S.L.S.C. to Bream Creek mouth. (19th February) Trevor Pescott.
8. Black Rocks to 13th Beach 2.7 km (19th February) Ray Hodge. Most birds found closest to Black Rocks.

   On 20th February Ray Hodge also covered the Barwon River mouth to Ocean Grove and found no birds, and Ocean Grove to Collendina with little success. He noticed that by late morning on 20th February, no small birds could be found, perhaps because they were decomposed.
9. Collendina to Ocean Grove, and Collendina towards Point Lonsdale. (20th February) Valda Dedman and G.F.N.C. members.
10. Fellows Road to Point Lonsdale Pier. (20th February) Glad Gaasch and Eileen Ritchie.

Nothing was found on sampled sites near Spout Creek (west of Eastern View) and Fairhaven S.L.S.C. Beach, and nothing on Anglesea Beach which is steep and had very little jetsam.

The birds generally did not show any indication of having been burnt. Many had begun to decompose by the time they were washed ashore, and decomposition continued rapidly once the birds were beached.

In the lists, no attempt was made to separate the currawongs and ravens into species.

	FAIRHAVEN 1	HUTT GULLY 2	PT. ADDIS 3	JAROSITE 4	FISHERMAN'S 5	PT. IMPOSSIBLE 6	BANCOORA 7	13TH BEACH 8	COLLENDINA 9	PT. LONSDALE 10	TOTAL
White-faced Heron				2							2
Great Egret							1				1
Straw-necked Ibis			1	1		1		1		1	5
Brown Goshawk			2		1	1	5	2	2		13
Collared Sparrowhawk								1			1
Marsh Harrier				1							1
Brown Falcon			1	1	1						3
Australian Kestrel								2			2
Masked Lapwing						1					1
Common Bronzewing			1*	1*			3	2			7
Brush Bronzewing							3		1		4
Yellow-tailed Black Cockatoo			2	1	2		4	1	3		13
Gang-gang Cockatoo		1	1			2	2	1			7
Galah							1				1
Sulphur-crested Cockatoo		1	5	9	8	10	23	18	3	1	78
Purple-crowned Lorikeet							1				1
Little Lorikeet								1			1
Australian King-Parrot	1		4	1	1	1	6				14
Crimson Rosella	10	9	115	110	57	82	405	185	11		984
Eastern Rosella								1		1	2
Blue-winged Parrot				1			4	1			6
Southern Boobook			4	4		2	5		1		16
Masked Owl			1				1				2
Tawny Frogmouth	2*										2
Australian Owlet-nightjar		1	1	1			1				4
White-throated Needletail							3	2			5
Azure Kingfisher							1				1
Laughing Kookaburra			3	2			4				9
Sacred Kingfisher									1		1
Skylark									1		1
Blackbird			3								3
Flame Robin							3				3
Scarlet Robin				1							1
Eastern Yellow Robin	1		1								2
Crested Shrike-tit				1			1	1			3
Golden Whistler	1		5	11			13				30
Rufous Whistler			1	1			6				8
Grey Shrike-thrush			12	8		4	8				32
Satin Flycatcher			1	1							2
Rufous Fantail				1		2	1	5			9
Grey Fantail							2				2
Willie Wagtail			4	2							6
Rufous Bristlebird					3		1				4
Striated Thornbill			1*				1				2
White-throated Treecreeper		2	4	5			16				27
Red Wattlebird	1	1	13	12	1	5	47	23	1		104
Little Wattlebird								1			1
Yellow-faced Honeyeater			2	1			4				7
White-eared Honeyeater	2	2	18	8			24	3			57
Yellow-tufted Honeyeater			1								1

	FAIRHAVEN 1	HUTT GULLY 2	PT. ADDIS 3	JAROSITE 4	FISHERMAN'S 5	PT. IMPOSSIBLE 6	BANCOORA 7	13TH BEACH 8	COLLENDINA 9	PT. LONSDALE 10	TOTAL
White-plumed Honeyeater				2							2
Brown-headed Honeyeater	1	1					2				4
White-naped Honeyeater		1	12	11			27	2			53
Crescent Honeyeater							1				1
New Holland Honeyeater	4	5	55	41	3	3	138	32	1		282
Eastern Spinebill			2	1			1				4
Pardalote sp.			1								1
Silvereye		1	3	1			1				6
European Goldfinch							3				3
House Sparrow		1									1
Common Starling			1				2				3
White-winged Chough					1						1
Dusky Woodswallow							1	2			3
Australian Magpie		1	9	3	1	4	23	20	5		66
Currawong sp.	2	1	30	13	5	13	85	30			179
Raven sp.			3	1	1	13	16	47	5		86
Unidentified honeyeater			7	7							14
Unidentified small birds						2		7			9

* These identifications are probable but not positive

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Moggs Creek: Ash Wednesday Plus Nineteen Days

Betty and Dave King

These notes record our impressions and findings nineteen days after the disastrous fires of Wednesday, 16th February 1983, at Moggs Creek, which received some of the most intense fire storm.

These are not notes of a detailed survey of the small area visited, but the result of two hours walking around and observing. The precise location is the Girl Guides Camp, "Tallawalla", approximately 0.75 km inland from the sand-barred entrance of Moggs Creek, and the whole is situated within the Angahook State Forest. The dominant vegetation is open forest of Ironbark *Eucalyptus sideroxylon,* with Manna Gum *Eucalyptus viminalis* in the gully which has been formed by the creek about five metres below the essentially flat area of Tallawalla. The total area covered by our observations would amount to about five hectares.

On arrival the immediate impression was one of utter desolation: stark blackened trees, bare ground except for the remains of trees blown down, or the upper portions of those trees decapitated, by the cyclonic-force wind.

This wind was probably a combination of the initial high wind and the convective wind created by the magnitude and intensity of the fire. Few trees had any leaves. Those leaves that remained were scorched, and continued to fall. This absence of leaves and bird life produced an eerie silence that enhanced the sense of a total absence of living things.

As far as the eye could see, a kilometre through the ravaged forest, the only signs of life were the Grass trees *Xanthorrhoea australis*. Miraculously these appeared to have survived in total: each and every one had produced between 100 and 150mm of new green growth with each blade surmounted by a scorched and burnt portion.

Close attention to the bare soil surface revealed that much of the ant population had survived, particularly in those areas where there had previously been an undisturbed cover of understorey vegetation. Everywhere could be seen freshly deposited grains of sandy loam around the entrance holes to underground ant nests, as many as six entrances per square metre of ground. In most cases the ants appeared to be Myrmicinae species.

Sufficient rain had fallen on about the 17th day to produce a small amount of run-off in areas of reasonable slope, and the water had collected as puddles in many places. Although all had dried out at the time of this observation, the surface was still damp. Those shallow depressions that had collected water had in many cases, fungi growing around the periphery. In these the fungi formed a continuous layer, orange-red in colour. It suggests that the fungal spores were brought with the rain or blew into the area immediately after, floated on the surface and collected around the water line. The distinctive colour, and the fact that a great deal of carbon was present as charcoal, points to the possibility that the fungi is one of the Ascomycetes.

It was interesting to observe the trees which had been decapitated. All seemed to be localized. The splintered fractures in their trunks had not suffered burning, but at most only slight scorching. In fact, some of these decapitated trees appeared to have suffered less effect from the fire than those close by, which had been severely burned.

Some hollow trees were still smouldering, together with a number of old tree stumps, many of which appeared to have been the centre of considerable termite activity before the fire.

The only birds seen or heard were a solitary Black-faced Cuckoo-shrike *Coracina novaehollandiae*, probably immature as indicated by grey bars on the breast (Pizzey, 1980), an unidentified Woodswallow, Australian Raven *Corvus coronoides* and Magpie *Gymnorhina tibicen*.

The creek, dry except for an occasional pool, provided the most signs of life. Sedges (Gahnia sp.) were producing new growth from beneath the burnt and bare alluvial sand to a height averaging about 100mm. An occasional frond of the Common Bracken *Pteridium esculentum* had thrust to a height of around 200mm. At least two other plant species were evident in small numbers.

Here in the creek bed, a number of creatures had survived the holocaust and were obviously flourshing. First to come to notice was the Leaf Curl Spider *Phonognatha wagneri* with its web placed between the burnt debris and a retreat formed from the only available material, a partially burned leaf. Prey, it would seem, must consist largely of Bush Flies *Musca vetustissima* which were relatively plentiful. Other insects observed were Dragonfly (*Aeshnidae* sp.) and Damsel Fly (*Coenagrionoidae* sp.) One solitary White Butterfly (*Pieris* sp.) was seen moving through the blackened forest above the creek. Several Bull Ants (*Myrmecia* sp.) were foraging along the creek bed, but no nests were seen.

Several skinks were observed moving around the creek bed. One species was identified as *Sphenomorphus tympanum.* Examination of faeces from one of these skinks indicated it had been feeding on beetles, probably of the family Hydrophilidae, which suggests that the pools in the creek contained a population of this beetle. Another skink seen was not positively identified, but thought to be a species of the genus Leiolopisma.

A dam or earth tank just outside the camp area had a least one species of frog, but the call was not sufficient duration to even conjecture the species. Water in the dam had the appearance of Indian ink, undoubtedly resulting from large amounts of charcoal and ash deposited in it. The odour emanating from it indicated the water was in an advanced state of putrefaction.

Monitoring the recovery of the area will be an interesting study. Already wind-blown seeds are entering the area, and Ironbarks whose seed capsules were not severely burned are dropping seed, most of which is probably viable.

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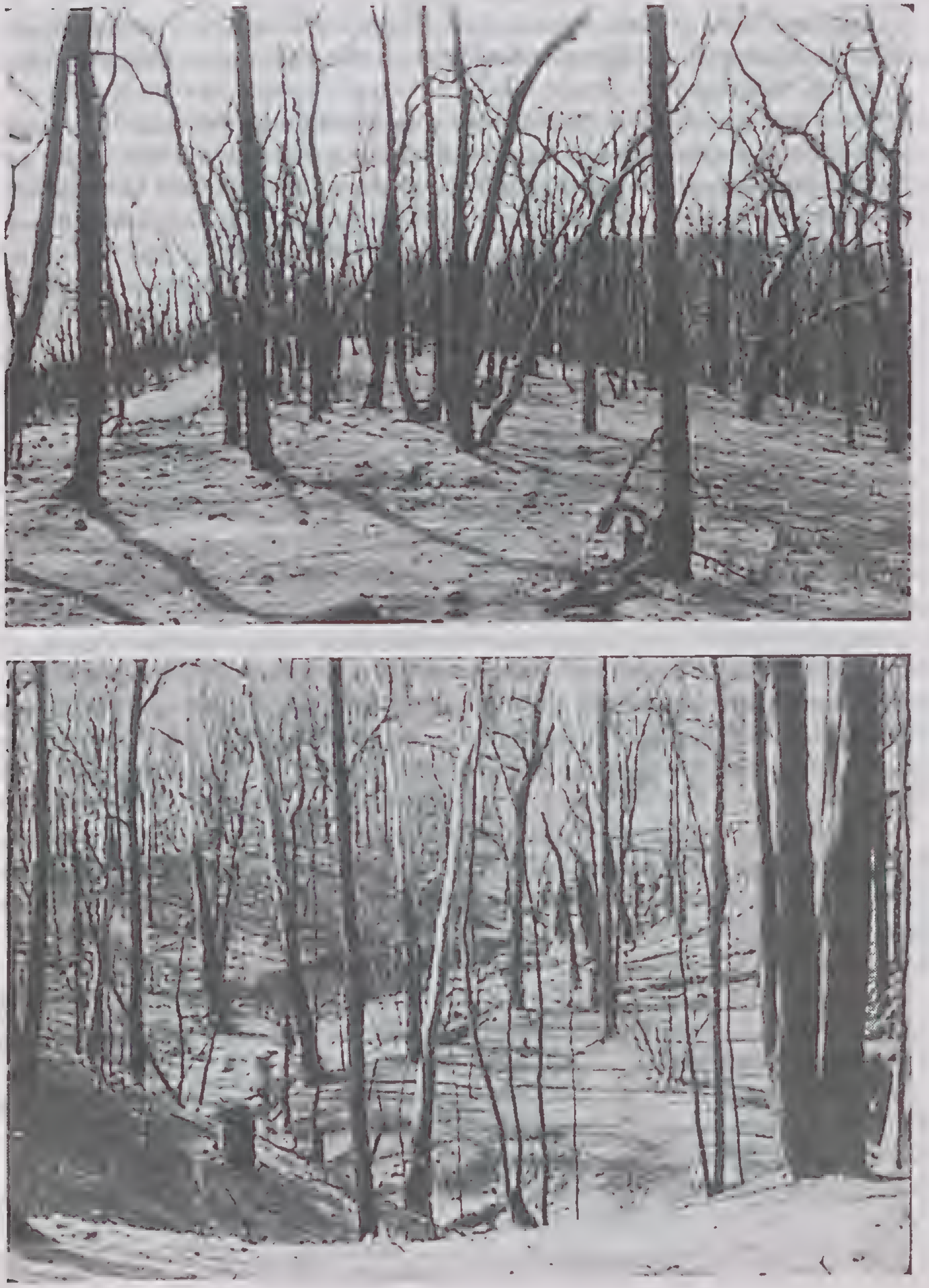
B.D. and D.F. King, 8 Traum St., Portarlington, 3223.

Moggs Creek 27 days after the Ash Wednesday fire.



Moggs Creek: Eight Days Later

Valda Dedman

The preliminary survey of Moggs Creek by the Geelong Field Naturalists Club took place on 13th March, 1983 in and around the picnic area, close to the area visited by Dave and Betty King the previous weekend.

Again, the first impression was of total destruction: the blackened trees, the complete absence of undergrowth, and the silence. It was strange how soon we accepted the landscape and quickly became excited by the smallest signs of regeneration.

Unexpectedly it was the fungi which first attracted our attention. Several toadstools of the Boletus genus, some up to 10 centimetres in diameter, had pushed through the ash-strewn earth, together with another polyporous fungus of unknown species. The patches of orange ground-hugging fungus noted by the Kings were widespread in the damper spots, as was a similar velvety white variety. The most encouraging signs were the new shoots that were beginning to appear on the eucalypts. Epicormic growth, mostly only about 5cm high, was seen around the bases of the smaller ironbarks *Eucalyptus sideroxylon* and it reached 15cm on at least one gum-type eucalypt. In moist depressions eucalypt seed had germinated and the centimetre-high plants were just at the two-leafed stage. A few other unidentfied two-leafed seedlings were also noted, and several acacias.

All the grasstrees *Xanthorrhoea australis* were showing green shoots, and Spiny-headed Mat-rush *Lomandra longifolia* was growing. Some fronds of the resilient bracken *Pteridium esculentum* were 90cm tall and beginning to uncurl. There was no other sign of fern regeneration; the blackened stumps looked completely lifeless. What had been an attractive fern gully was bare desolation, although in one of the pools some small waterplants survived, and we heard a Banjo Frog *Limnodynastes dumerilii* call several times. A small mammal had left tracks in the clay washed down into the stream bed after the recent rains.

Few birds were seen. Three Crimson Rosellas *Platycercus elegans* perched in a very tall surviving casuarina. A flock of twelve Red Wattlebirds *Anthrochaera carunculata* passed through, one White-throated Tree-creeper *Climacteris leucophaea* was seen, and a pair of Scarlet Robins *Petroica multicolor* which no doubt found enough insect life to feed on.

Insects were relatively common. There was much activity by ants of all sizes; very small ones were cleaning up the carcass of a partially burned small mammal (*Rattus* sp.?) Some had left piles of sawdust outside their holes; they were possibly reorganising their underground galleries. Blue-

Grass trees at Moggs Creek.

bodied dragonflies, damselflies, a ladybird, a cockroach, small white moths (several of which had drowned in a small pool), and male Common Brown butterfly *Heteronympha merope merope* were all seen.

We were puzzled at first by numerous short tubes, about 1.5cm in diameter, which protruded above the present soil level. Some had been baked hard by the fire. Later we discovered some with their former inhabitants' pupal cases still attached. These were identified as belonging to a species of Swift Moth, which in these cases had emerged after the fire.

Skinks were the only other form of life observed. They were relatively common and included the common garden skink *Leiolopisma guichenoti*, an unidentified orange-throated skink, and a water skink *Sphenomorphus tympanum.*

It will be interesting to see how quickly, and what variety of, life returns to such a devastated area.

Velda Dedman, 69 North Valley Road, Highton, 3216.

Notes on the effects of the Ash Wednesday fire on the Ironbark Basin, Point Addis

Valda Dedman

The fire pattern in the Ironbark Basin was typical of the damage done by the fires of 16th February, 1983 in many parts of the Eastern Otways. The fire had moved very quickly and jumped erratically so that some parts of the Basin are blackened, some trees retain scorched leaves, and one patch remains green and completely unscathed. Many of the Ironbarks *Eucalyptus sideroxylon* are badly burned, and in some parts the heath vegetation has all but disappeared right up to the cliffs. One patch of coastal vegetation is untouched, and fringe areas along the road are not so badly burned. There should therefore be a reservoir of seed from which the burnt areas can be recolonized.

The worst-hit areas seemed totally burnt when viewed from the road on 5th March; on 13th March Grass-trees *Xanthorrhoea australis* had obvious regrowth, and on 26th March, when the Bird Study Group of the Geelong Field Naturalists Club visited the area, epicormic shoots were appearing, especially on the smaller trees.

On 4th March Superb Fairy-wrens were observed in scorched tree-tops (there was no undergrowth for them to hide in), Magpies flew over, and a

White-throated Treecreeper was heard. Next morning the species seen totalled seven.

We walked right through the Basin to the sea on 26th March. The commonest bird in the burnt area was the Eastern Yellow Robin and several beautifully marked White-throated Treecreepers were seen. Other birds included White-browed Scrubwrens in leaves and fallen debris around fallen trees, Crimson Rosellas, and Brown and Striated Thornbills. A Peregrine Falcon was perched high on the cliffs at Point Addis.

Bird List 4-5th March	**10 minutes observation**
Whistling Kite	*Haliastur sphenurus*
Eastern Yellow Robin	*Eopsaltria australis*
Grey Fantail	*Rhipidura fuliginosa*
Willie Wagtail	*Rhipidura leucophrys*
Suberb Fairy-wren	*Malurus cyaneus*
White-throated Treecreeper	*Climacteris leucophaea*
Australian Magpie	*Gymnorhina tibicen*

Bird List 26th March	**3 hours observation**
Peregrine Falcon	*Falco pergrinus*
Crimson Rosella	*Platycercus elegans*
Welcome Swallow	*Hirundo neoxena*
Scarlet Robin	*Petroica multicolor*
Eastern Yellow Robin	*Eopsaltria australis*
Golden Whistler	*Pachycephala pectoralis*
Grey Shrike-thrush	*Colluricincla harmonica*
Grey Fantail	*Rhipidura fuliginosa*
Superb Fairy-wren	*Malurus cyaneus*
White-browed Scrubwren	*Sericornis frontalis*
Brown Thornbill	*Acanthiza pusilla*
Striated Thornbill	*Acanthiza lineata*
White-throated Treecreeper	*Climacteris leucophaea*
Red Wattlebird	*Anthochaera carunculata*
White-eared Honeyeater	*Lichenostomus leucotis*
Silvereye	*Zosterops lateralis*
Australian Magpie	*Gymnorhina tibicen*

Valda Dedman, 69 North Valley Rd., Highton 3216.

Mammals and Birds after the Fires: Forest Road, Anglesea

Valda Dedman

On the evening 4th March 1983, a little over two weeks after the fire of 16th February, Gordon McCarthy and Valda Dedman put out mammal traps in the region of the creek which crosses Forest Road, Anglesea, near the reservoir.

This area was chosen because it was at the extreme northern edge of the burnt land, and because Potoroos had previously been recorded there. Seventeen traps were put out; ten Elliott 60x traps and seven larger wire mesh traps of various sizes. Surrounding vegetation had been burnt but the creek itself had missed the fire and there were several areas of unburned tussocky grass and sedge. We put the traps among this grass cover, although one trap was more exposed, on burned ground at the edge of the creek vegetation.

This was the only successful trap. It was a small wire trap, 15cm wide and 45cm long, and a Swamp Rat *Rattus lutreolus* was caught.

There were no signs of Potoroos, but fresh wallaby droppings were seen on the burned surface, and next morning several wallabies were seen nearby, in both burnt and unburnt open forest, including one inside the fence surrounding the reservoir.

The weather was sultry with rain periods. Ants were busy and some birds were seen and heard. White-throated needletails were flying so low that their wingbeats could be heard.

Bird List

Yellow-tailed Black Cockatoo	*Calyptorhynchus funereus*
Crimson Rosella	*Platycercus elegans*
White-throated Needletail	*Hirundapus caudacutus*
Eastern Yellow Robin	*Eopsaltria australis*
Golden Whistler	*Pachycephala pectoralis*
Grey Fantail	*Rhipidura fuliginosa*
Superb Fairy-wren	*Malurus cyaneus*
White-throated Treecreeper	*Climacteris leucophaea*
White-eared Honeyeater	*Lichenostomus leucotis*
New Holland Honeyeater	*Phylidonyris novaehollandiae*
Eastern Spinebill	*Acanthorhynchus tenuirostris*
Grey Currawong	*Strepera versicolor*
Little Raven	*Corvus mellori*

Valda Dedman, 69 North Valley Rd., Highton, 3216.

Geelong garden birds on the days of dust-storm and bushfire

Theo Trickett

Just before the huge duststorm in Geelong on 8th February, 1983, the behaviour of birds was extraordinary. The wind was lashing the garden trees in every direction, and it was very hot. Sparrows, New Holland Honeyeaters, Red Wattlebirds, Starlings and Blackbirds appeared to be trying to reach particular perches, and the garden looked like a whirlpool of bewildered birds. As the darkness of the storm climaxed at 2.30 p.m., one couldn't see through the air, thick with dust, to see what was happening outside – with the lights on in the house it might as well have been night. And it goes without saying that the bird-baths were mud-baths when they were checked after the storm.

In the 43° heat of Ash Wednesday, 16th February, with a hard gusting north-westerly, the worst wind of summer, we had been careful to keep the bird-baths clean and the water fresh and cool. The Rainbow Lorikeets and other honey eaters had been drinking a lot of nectar during the morning, but in the afternoon there were hardly any birds around the garden. There seemed to be some dust and smoke on the wind, which appeared to be circling the Highton/Barrabool hills. At about 4 p.m. it suddenly occurred to me that the nectar bottle was at about the same level as when it had been put out, so perhaps the nectar would be hot – not much refreshment or nourishment to the birds in that heat. So I prepared a fresh, cold bottle, and was taking it down, when two Rainbow Lorikeets landed on the foot-ring, and leant against each other, panting, with their beaks open. They did not seem to be our usual lorikeets – they seemed uncertain where to find the feed-opening, and were thinner than our usual callers. In a few moments the poor distressed things flew off. The nectar bottle that had been there all afternoon was as hot as a kettle – if only I'd thought of changing it earlier!

As news of the dreadful fires came through later, one felt sick at the thought of all the birds and animals that would be unable to escape, and the destruction of the forest, as well as the loss of human life and possessions.

For a couple of months before the Ash Wednesday fires there were more Purple-crowned Lorikeets around in nearby eucalypts and in Fyans Park than there had been in our twenty years here. The eucalypts had never before blossomed so profusely, either, as they did in the summer of 1982/83. But immediately after the wildfire, and since, there has been only a small party about, even though the eucalypt blossom was just as profuse util mid-March. A day or two after the wildfire, and since, there have been up to twelve Rainbow Lorikeets feeding two at a time (in turn) at the nectar bottle, whereas the usual number is 8 or 9. Also the clouds of Purple-crowned Lorikeets were replaced by large groups of Musk Lorikeets in the eucalypts, although only a very few visited the nectar bottle.

Mrs. T. Trickett, 37 Craigie Rd., Newtown, 3220.

Studies after the fire: effects and regeneration

Several groups and individuals are studying the effects of the fire of 16th February 1983 on the flora and fauna, recolonization and regeneration. Some of these projects are reported below. Richard Stone, of the state Forests Commission, Geelong, would welcome information on any study projects, and it is sensible that there should be such an exchange of information, to share experience and avoid duplication of effort. Assistance from other interested naturalists would be welcome for the G.F.N.C. and "Angair" projects – other projects have not indicated they need help, but they may.

1. **Otways Regeneration:** G.F.N. Club Project.
   Contact: Valda Dedman 432374

   The Geelong Field Naturalists Club is making a survey of regeneration after the Ash Wednesday fires in the Eastern Otways. It will continue over a period of five years, with observations being made each month and reports being produced at regular intervals.

   We have chosen one of the more severely burnt areas, near Moggs Creek, and an area of former heathland along No. 2 Road, as our main study sites. This should provide us with a variety of habitats, including forest, heath and creek vegetation. All forms of life will be observed: birds, mammals, plants, reptiles, amphibians, invertebrates. The various Club study groups will be involved, as well as interested individuals.

   We will collate all materials sent to us, and will produce as comprehensive reports as possible. We welcome contributions from all Club members.

2. "Angair" Flora Group Study of Vegetation Regeneration after Fire

Contacts: Winston Huggins (Convenor, "Angair" Flora Group) 03-3112971
Margaret Wark (Convenor, "Angair" Regeneration Study)
03-3891911
ext 431
Mary White (Secretary, "Angair") 052-631975

The aim of the "Angair" study is to see whether the composition of the local plant communities alters after fire.

Advice and assistance in planning the study have been obtained from Dr. D.H. Ashton (University of Melbourne, Botany School) and Mrs Helen Lee (Botany Department, LaTrobe University). The Forests Commission, Barrabool Shire Council and Crown Lands Department have given permission for studies to be carried out on public lands in the area.

Four plant communities on soils of different geological origin have been selected:

1. Coastal heathland east of Anglesea
2. Ironbark forest inland from Airey's Inlet
3. Swamp inland from Airey's Inlet
4. Sand dune between Airey's Inlet and Anglesea

The study will involve surveying and recording the plants found in each area at least once every six months (preferably after spring and autumn growth) and sampling the soil in each area at least every two years. Climatic records will also be kept where feasible. It is planned to run the study for a minimum of 10 years. Anyone who would like to participate is most welcome.

3. Post-fire Regeneration in the Anglesea Area: Deakin University

Contact: Barbara Wilson 471111

Previous studies by staff and students at Deakin University (Tony Bourne, Rosalind Jessop, Kathy Kentish, and Barbara Wilson) have provided data on the vegetation and small mammal populations in the Anglesea area. A study based on this data is planned, to monitor the process of regeneration in the burnt areas. this study will involve, firstly the analysis of vegetation involving floristic and structural analysis on grid sites previously analysed by Kathy Kentish. Secondly, small mammal trapping will be carried out on grid sites previously studied by our group. Capture-mark-recapture techniques will be used to investigate the return of small mammals to regenerating areas and to assess such population parameters as density, movement patterns, habitat use and spatial distribution, breeding times,and birth rates and survival rates.

The project will also aim to provide guidance for management programs, to ensure that where possible man does not impose extra pressures on the regenerating areas. The possibility of reintroducing species from unburnt areas will also be studied.

4. **Bird Recolonization after fire:** Margaret Cameron
Contact: Margaret Cameron 99792

Two areas have been selected, one of severely burnt messmate forest on the Bambra Road, and one on Bald Hills Road, Anglesea, which includes unburnt heath and stringybark, and severely burnt heath, stringybark, and a swampy gully. The method is adapted from that of the R.A.O.U. Rolling Bird Survey, and involves regular walks along a survey route with points selected at intervals of at least 150m. At each point all bird species seen or heard wthin a five-minute period are recorded.

These areas were selected because they are study sites for the Otways mammal study being carried out by Grant Baverstock and Lawrie Conole, and we will be able to compare our data.

President's Report 1982/1983

It is with a great deal of pleasure that I make the following report on the Club year 1982-83.

Meetings:

We have maintained an excellent standard of guest speakers through the year– Ed McNabb, Tom Rich, John Seebeck, Fabian Crowe, Angus Martin, Geoff Carr, Evan Thomas and John French are all acknowledged experts in their respective fields.

Thus we heard the recorded calls of Sooty, Powerful and other owls, learnt of fossil dinosaurs and living mammals, discussed marine reserves, noted the distinctive calls of frogs, met the rare Mellbloms Orchid, saw slides of water birds, and learnt of the life of termites.

Our members' nights were equally entertaining and informative, and I thank all who made their experiences available to us.

The juniors were also well catered for, and the assistance of all who participated is greatly appreciated.

Excursions:

Again this year, we have had a wide variety of outdoor activities to provide opportunities for as many members as possible to attend.

We have had bush campouts at Melville Caves, Brisbane Ranges, the Otways, and Loch Sport, weekend trips to the Grampians, Port Fairy and Mt. Baw Baw, a bus trip to Coolart, full day excursions to the Otways, Edwards Point, Point Lonsdale, Breamlea, Elaine and Lal Lal, and half-days to Buckley's Falls and Belmont Common.

We have agreed that we will automatically cancel any outdoor activity which falls on a day of total fire ban.

Thanks to all leaders and organisers of these highly successful and well planned trips.

Working bees:

The work at eradication of boneseed at our area of the You Yangs has continued. Tree planting at the site has been scaled down, and our efforts now involve maintaining the area already cleared and planted, as well as pushing the boneseed further back. We are hopeful that natural regeneration of trees and shrubs will relieve us of more planting.

We received $50 from the Quota Club to plant trees at the Belmont Common, and we selected River Red Gums, sheoaks and banksias which were planted along the levee bank near the Council Depot. The Club continues to hold a lease on the swamp area.

Thanks to all who gave their time and energy to support these two important projects.

Groups:

Both Bird Study and Botany Groups have had successful years; the former has held regular monthly meetings and excursions including a campout at Linton, while the botanists have continued their local plant studies as well as considering suitable means of planting the Robert Brown Arboretum at the You Yangs and improvements at the Sheoak Picnic Ground at Lorne.

Publications:

The four issues of **Geelong Naturalist** that have been published this year have contained articles on a variety of subjects— as diverse as mussels, seabirds, ferns, yabbies, orchids and mammals.

We have a record of a Common Noddy at Pt. Henry, a list of mammals at the Inverleigh Common, a report on seagrasses in Swan Bay, and a comprehensive article on the birds of Eastern Park.

Eighteen authors have had material published. Many thanks to Miss Margaret Cameron who has edited the magazine so successfully.

The monthly **Newsletter** has been printed in time for each meeting although we have not had a regular editor. Hopefully that difficulty has been overcome. A sincere 'thank you' to Mr. Harry Kroger for his support in preparation of the **Newsletter.**

Conservation:

The Club has continued in its conservation work, including the preparation and presentation of submissions on Land Conservation Council reports, the Mines (Amendment) Act, Otways woodchipping, South-west Tasmania, Breamlea Caravan Park, regeneration burning, Blue Waters Lagoon (Ocean Grove) and the National Conservation Strategy.

We have endeavoured to have the Belcher property at Batesford (Lilydale House) acquired, and land at Belmont purchased; we have worked hard at preventing a rubbish tip being established on the Barwon flood plain at Marshall (Sparrovale), so far without success.

The foreshore at Pt. Henry has been the subject of discussions with Alcoa, and the spread of Smilax has been investigated by the Club; currently we are looking at the feasibility of having a museum established in Geelong.

The Club has been represented at the opening of the Angahook Birdhide, the Victorian Institute of Marine Studies centre at Queenscliff, the formation of Men of the Trees and the Friends of the Brisbane Ranges National Park.

We have participated in wader counts, 'Challenge' birds counts, Orange-bellied Parrot studies and You Yangs mammal trapping, and we conducted another Disabled Persons' bird-watch at the Belmont Common.

The problems associated with fire risks at Anglese, and with playground development in the same area, were discussed on site with Angair.

Representations to the Fisheries and Wildlife Division about staffing at

Geelong, and the need to establish two-way communications by regular meetings, are proceeding.

The Ash Wednesday Eastern Otways fire which devastated so much bushland has left great areas of apparently barren land – we will carry out surveys to monitor the regeneration of plants and animals in selected sites.

The club nominated, unsuccessfully, for the Victorian Conservation Prize in 1982.

Other actitivies:

We were host Club to the winter campout of the Western Victorian F.N.C. Association. The campout was held at Ocean Grove and excursions took delegates to the You Yangs, Swan Bay, Pt. Lonsdale and other areas on the Bellarine Peninsula, then to the Nature Reserve for Sunday's lunch.

In fund raising, we held a Mannequin Parade, and a Street Stall in Highton; the Trading Table has been most successful as have several small raffles.

Outside Committees:

The G.F.N.C. is officially represented on the You Yangs Regional Park Committee of Management by Mrs. Dedman. Her influence in the operation of that committee is substantial, and the establishment of a Nature Trail near Big Rock has come from her initiative.

The Ocean Grove Nature Reserve Committee of Management is structured to have two Club members in its number. This year, one of our delegates, Mr. Jack Wheeler, decided to transfer to take the position of Gould League representative, and Mr. David King took his place. The two Club nominees at the present time are Mr. King and Mr. Trevor Pescott.

Both Committees meet regularly, and any requests made by Club members for action on matters relating to these reserves can best be attended to if our delegates are advised of those requests.

Finally, I express my sincere thanks to all Club members and to the Committee for their support and involvement in the year's activity.

TREVOR PESCOTT.

Treasurer's Report 1982/1983

General Account:

This financial year we introduced the posting of subscription renewal notices to all members prior to our Annual General Meeting, April 1982, in order to improve our subscription retrieval rate. This proved very effective, as in December, 1982, approximately 91% of members were financial, as compared with only 66% the previous December. Those members who remained unfinancial after some months were sent reminder notices. Subscription renewal notices, and reminder notices are quite common practice with various clubs and organizations. Most people would agreet it is all too easy to "forget", and consequently welcome a timely reminder.

Unfortunately it was not possible to send subscription renewal notices in March 1983, for the 1983/84 financial year. In any year when it may be deemed necessary to alter subscription rates there will be this problem. Our constitution states that subscription rates cannot be changed until approved at the Annual General Meeting – the time when subscriptions are actually **due**. This of course makes it impossible to circulate subscription renewal notices beforehand, as the actual rates are not known.

This year our expenditure exceeded our income by $550.61. This was not unexpected, due to general rising costs. Our expenses were largely basic running costs with **no** purchases of new equipment, a small expenditure ($72.00) on library books, and modest donations to appeals of other organizations ($110.00 in total). $70.00 was donated to the National South West Coalition (Franklin River Campaign), and $10.00 each to the R.A.O.U., A.C.F., V.N.P.A. and Science Teachers Association Talent Search.

Income and expenditure for the 21 st Birthday Dinner held at "Rosnashane", March 1982, spanned the two financial years. Income from the sale of tickets for the Dinner artificially improved the appearance of our General Account last year by $661.00 but this year, of course, we had to pay for our celebrations ($850.00). Our receipts exceeded the cost of Dinner by $170.00. $85.00 of this went towards printing costs for tickets, etc., leaving a donation of $1.00 per head to the Club funds. A very pleasant and enjoyable way of adding a little to our coffers!

If we overlook the receipts for the Birthday Dinner, we find that 51% of our income came from subscriptions ($2,366.00), 27% from fund raising events ($1,247.65), with the remaining 22% coming from donations and sundries. Likewise, if we overlook our payment for the Birthday Dinner, we find that 62% of our expenditure is for printing costs.

A commendable effort has been carried out by our very active "fund raising members", under the leadership of Mrs. Lily Sherwood. (Fashion Parade $208.00, Cake stall $522.10, Trading Table $326.75, Raffles $190.80) A very welcome donation of $461.74 was received from the City of South Barwon Recreation Vouchers, and $50.00 from the Quota Club for the purchase of trees for the Belmont Common.

It was decided by the Committee to transfer $400.00 from our Excursion Account to our General Account Deposit Stock, to gain the benefit of a higher interest rate on "Stationary" capital. Our General Account Deposit Stock consequently stands at $1,900.00.

Excursion Account:

Our apparent expenditure exceeded income by $448.64, but $400 of this was actually transferred to General Account Deposit Stock. Our expenses for hosting the W.V.F.N.C.A. weekend exceeded our receipts, which is understandable for a host club.

It has been agreed by the Committee that separate Excursion Account is no longer necessary. In the new financial year it is proposed to absorb the Excursion Account into the General Account.

No. 3 Account:

This special purpose account caters for the income and expenses connected with the booklet produced by Mr. Jack Wheeler, "The Care of Sick and Injured Birds and Animals".

In December, $1,800.00 from the working account was transferred into No. 3 Account Deposit Stock. This leaves $487.20 in No. 3 Account.

I would like to thank those people who have helped me through the year, especially Mrs. Betty Quirk to whom I give special thanks, in advance, for covering me in my absence from duty! Special thanks to Miss Jean Hoggart for auditing these books.

(Miss) Diana Primrose
Honorary Treasurer
G.F.N.C.

Geelong Field Naturalist's Club

Treasurer's Statement

for Year ending 3rd March, 1983

GENERAL ACCOUNT

Income

Income	
Subscriptions	$ 2,366.00
Donations	675.25
Sale of Publications	91.70
Interest	216.46
Sale of badges and car stickers	14.40
Fashion Parade	208.00
Cake Stall	522.10
Trading Table	326.75
Raffles	190.80
Tickets 21st Birthday Dinner	359.00
Sale of old books	20.50
Sundry	14.25
	$ 5,005.21

Expenditure

Expenditure	
Printing	$ 2916.40
Postage	413.47
Petty Cash	145.00
Subscriptions to other Clubs	204.00
Rent	64.00
Donations to St. David's for use of Hall	212.00
Insurance	288.40
Donations	110.00
Purchase of publications	90.65
Purchases for Library	72.00
Travel expenses to speakers	50.00
"Rosnashane" for 21st Birthday Dinner	850.00
Accounting Fees, etc	13.76
Sundry	126.14
	$ 5,555.82

Excess expenditure over income $550.61

Deposit Stock General Account 3.3.83	**$1,900.00**

EXCURSION ACCOUNT

Income

Income	
'Coolart' Bus Trip	$ 440.00
W.V.F.N.C.A. Weekend	779.25
Grampians Weekend	464.25
Interest	19.12
	$ 1,702.62

Expenditure

Expenditure	
'Coolart' Bus Trip	431.00
W.V.F.N.C.A. Weekend	832.26
Grampians Weekend	468.00
Baw Baw deposit	20.00
Transfer to Deposit Stock	400.00
	$ 2,151.26

Excess Expenditure over Income $ 448.64

No. 3 ACCOUNT

Income		**Expenditure**	
Donations	$ 655.27	Postage	$ 203.95
Interest	317.76	Accounting fees, etc	2.12
		Transfer to Deposit Stock	1,800.00
	$ 973.03		$2,006.07

Excess Expenditure over Income $1,.033.04

Deposit Stock No. 3 Account	**$3,800.00**
Deposit Stock No. 3 Account	$3,800.00

HOUR COUNT No. 43

Grahamstown Dam, Raymond Terrace N.S.W.

Roy Wheeler

Water is the most essential commodity for a great industrial city such as Newcastle. It has three main sources of supply: Chichester Dam back in the ranges near Barrington Tops, the Tomago sandbeds, and Grahamstown Dam. The capacity of the Grahamstown Dam is 33,566 million gallons and the surface area is 9.97 square miles (25.36km^2) and the average depth of the water is 20 feet (6.96m).

The Grahamstown source was authorised on the 5th April 1955, and provided for the pumping of fresh water from the Williams River near Seaham. As the Williams River at this point is tidal, it was necessary to construct a weir to form a barrage between the tidal salt water and the fresh river water. The river water is conveyed by canal about 3 miles (4.8 km) to Balickera, where it is raised 50 feet (15.24m) by pumbing, before gravitating through a tunnel to the storage at Grahamstown near Raymond Terrace. The storage has been formed by constructing an embankment across the outlet of a natural depression known as the Grahamstown Moors and subsidiary embankments between hills.

Water pumped from the Williams River enters the Grahamstown storage at the end remote from the point of draw-off. There is a local catchment area of 38.4 square miles (99.3km^2) above the site of the dam at Grahamstown. This catchment area includes the Campvale drainage system. Water from the Grahamstown Dam passes through conventional treatment plants before it is pumped into the Hunter District Water Board's supply system.

Treatment includes chlorination, dosing with alum and lime, flocculation, sedimentation and filtration.

The supply was first brought into service in 1960. The best view across the Dam was from the highway going north. In both 1981 and 1982, we parked on the side of the road with trucks and cars rushing past at 100 k.p.h. and did hour counts.

Grahamstown Dam, Raymond Terrace. N.S.W. From roadside on northern highway. June 6th, 1981 from 2.40 to 3.40 p.m. Dull with strong south wind. Water low. Dr. Ian Reed, Dr. Keith Howard, Mrs Faith Reed and Roy Wheeler. Birds in order of sighting:

Masked Plover, 4; Pacific Heron, 1; Willie Wagtail, 1; Magpie-lark, 4; Welcome Swallow, 6; Black Duck, 12; Coot, 40; Black Swan, 4; Australian (Black-backed) Magpie, 4; Raven, 4; Nankeen Kestrel, 1; Galah, 4; Little Black Cormorant, 1; White Egret, 3; Noisy Miner, 3; Starling, 4; White-breasted Sea-eagle, 2; Eastern Rosella, 2; Pied Currawong, 1; Whistling Kite, 3; Crested Pigeon, 1; White-faced Heron, 1; Chestnut Teal, 3; Australian Pelican, 3; Grey Teal, 6; Little Grebe, 1;

Total 26 species and 120 individuals.

Almost one year later Dr. Reed and I did another count from practically the same spot on the highway. June 4, 1982 from 12.36 to 1.36 pm. Cloudy and misty with a slight south breeze. Dam almost at capacity. Birds in order of sighting:

Australian Pelican, 8; Australian Magpie, 4; Black Swan, 5; Cattle Egret, 4; Musk Duck, 1; Tree Martin, 6; Coot, 10; Black Duck, 20; Magpie-lark, 4; Welcome Swallow, 50; White (Great) Egret, 8; Maned Duck (Goose), 2; Little Grebe, 40; Hoary-headed Grebe, 2; Little Pied Cormorant, 4; Black (Great) Cormorant, 6; Silver Gull, 1; Willie Wagtail, 2; Yellow-billed Spoonbill, 3; Grey Teal, 4; White-breasted Sea-eagle, 1; Royal Spoonbill, 3; Grey Teal, 4; White-breasted Sea-eagle, 1; Royal Spoonbill, 1; Whistling Kite, 2; Raven, 1; Masked Plover, 2; Great Crested Grebe, 1; Little Black Cormorant, 4; Pipit, 1.

Total 28 species and 197 individuals.

In the two counts we listed 39 species for the Dam. My grateful thanks to Dr. and Mrs. Reed for their wonderful hospitality and to Mrs. Kay Imrie for the information regarding the Dam.

Roy Wheeler, 59a Upton Road, Windsor., Vic. 3181.

Correction Vol. 19 no. 4 February 1983

Birds of Eastern Park, Geelong: Craig Morley

As a result of a late observation of a Richard's Pipit after the tables had been completed the following corrections should be made. The information in the species list is correct.

P. 107 Table 3
c) Recorded during present study but not breeding **add** Richard's Pipit
b) Not recorded during present study **delete** Richard's Pipit

P. 109 lines 2 & 3 **should read** –

> Nine of the species he (Belcher) reported breeding were not recorded during the present study, and thirteen were recorded but apparently no longer breed there.

P
570.5
C297

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Hon Editor,
Margaret Cameron,
4 Connor Street,
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Editorial

Since my last editorial, the High Court's decision has effectively protected the World Heritage area of Southwest Tasmania, from the danger of dams on the Franklin.

Australia has other World Heritage areas — Kakadu, Willandra, Lord Howe Island, the Great Barrier Reef. . . None are in Victoria. Is all of Victoria already — or doomed to be — so cleared, logged, woodchipped, grazed, eroded, poisoned with salt and industrial pollution, crowded with people, that none of it is worth preserving for ever — not just for Victorians but for all people?

Do we care for and care about the parks we have already? Rubbish, weeds, trailbikes, logging in the Otways National Park, suggest poor stewardship of the reserves we have. For the sake of the future, what little country is still unscathed urgently needs to be protected and cared for, now.

Margaret Cameron

-7 OCT

Bats in the Geelong – Otway District: a brief discussion of present knowledge and future work

Lawrie Conole and Grant Baverstock

INTRODUCTION

This paper briefly discusses bats found in the Geelong-Otway district according to records held by the authors, and suggests some species likely to be present but not yet reported.

During the period from July 1981 to June 1982, the authors surveyed mammals in the Lorne section of the Angahook-Lorne Forest Park (paper in prep). As part of this survey, bat trapping was carried out with a Tidemann and Woodside (1978) collapsible bat trap. At the conclusion of that survey, the authors began a bat survey of the Geelong-Otway district. The survey techniques presently employed include the collapsible bat trap, and a modified method of trip-lining dams (Parnaby 1976). The duration of the survey period is at present indefinite. In addition to these field surveys, the authors have attempted to take into account all other recent reports of bats in the area, and would appreciate any information or enquiries related to bats in this region.

Bats trapped during the course of field surveys were handled under the provisions of scientific permits 81/225, 82/112 and 83/17 issued by the Fisheries and Wildlife Division, Victoria.

DISCUSSION

Sub-Order Megachiroptera
Family Pteropodidae

1. *Pteropus poliocephalus* Grey-headed Flying-fox
   Irregular visitor to district. Dead specimen at Sutherlands Creek 1981 (T. deVries pers. comm.). Several animals at Wallington 1982.

2. *Pteropus scapulatus* Little Red Flying-fox
   Rare vagrant. Dead specimen from Geelong, 1978 (T. Pescott pers. comm.).

Sub-Order Microchiroptera
Family Emballonuridae

3. *Taphozous flaviventris* Yellow-bellied Sheathtail-bat
Probably a rare resident. A recent record for the Brisbane Ranges (Conole 1981) also details previous local records.

Family Molossidae

4. *Tadarida australis* White-striped Mastiff-bat
A widespread and moderately abundant species found in a variety of habitats, although as a high flying aerial species it is probably somewhat independant of habitat type. Our records show the species to be present at Aireys Inlet – Bambra, Inverleigh, Marcus Hill (T. Pescott pers. comm.), Ocean Grove and Winchelsea (G. McCarthy pers. comm.).

Family Vespertilionidae

5. *Pipistrellus tasmaniensis* Great Pipistrelle
Usually regarded as a bat of high rainfall montane and foothill forest, *P. tasmaniensis* is actually more flexible than this. We recorded the species in typical habitat of tall open-forest at Aireys Inlet-Bambra, but also in a typical dry woodland in the Inverleigh Common Flora Reserve.

6. *Chalinolobus gouldii* Gould's Wattled Bat
A widespread and abundant species. We trapped it in open-forest, tall open-forest and closed-forest in the Otway Ranges at Grey River, Wye Plantation and Aireys Inlet; and at Inverleigh in dry woodland. One was found in a shearing shed on the M.M.B.W. farm at Werribee and one in a fuse-box at Shell Refinery, Corio. The latter locations are surrounded by sparsely treed farmland. Pescott (1976) records the species for the You Yangs Forest Park.

7. *Chalinolobus morio* Chocolate Wattled Bat
Also widespread and abundant, *C. morio* has however been found in a different range of habitat types from *C. gouldii.* Trapped in open-forest, tall open-forest and closed-forest in the Grey River, Wye Plantation, Lorne, Gellibrand, Mount Cowley, Aireys Inlet and Bambra areas of the Otway Ranges. The species was also found to inhabit suburban parkland at the Geelong Botanic Gardens.

8. *Eptesicus vulturnus* Little Forest Eptesicus
This species was caught less frequently than *E sagittula* and *E regulus* in the Otways. However at Inverleigh Common, 87 out of 156 bats caught were *E vulturnus,* reflecting the apparent preference of this species for dry woodland habitats. Several caught at Ocean Grove Nature Reserve.

9. *Eptesicus regulus* King River Eptesicus
Widespread and uncommon. Trapped at Grey River, Gellibrand and Aireys Inlet in the Otway Ranges. Very few were trapped at Inverleigh.

10. *Eptesicus sagittula* Large Forest Eptesicus
Widespread and abundant. This species occupies a wide range of habitats and accounted for a substantial proportion of catches at Lorne, Mount Cowley, Aireys Inlet and Gellibrand in the Otways. (38 of 156 bats caught at Inverleigh were *E sagittula.*)
A recent revision of the genus *Eptesicus* by McKean *et al.* (1978) saw the original one Australian species, *E pumilus,* split into 5 species: *E pumilus, E. douglasi, E. sagittula, E. regulus* and *E. vulturnus.* Pescott (1976) records *E pumilus* for the You Yangs, but in view of current taxonomy it is not possible to speculate on which of the new species are actually present.

11. *Nyctophilus geoffroyi* Lesser Long-eared Bat
Widespread and abundant. Trapped mainly in open-forest and woodland at Gellibrand and Aireys Inlet in the Otways. Also at Inverleigh and Geelong Botanic Gardens in woodland and parkland. Frequently encountered in Highton, Newtown, Geelong West and East Geelong. Found in a shearing shed on M.M.B.W. farm at Werribee and in a dairy at Moriac. Recorded by Pescott (1976) for the You Yangs. A colony lives in a building on Swan Is. (M. Schulz pers. comm.).

12. *Nyctophilus gouldi* Gould's Long-eared Bat
Restricted in range but abundant. Only trapped in tall open-forest at Grey River and Aireys Inlet. Seen in flight at Lorne and Wye Plantation.

13. *Miniopterus schreibersii* Common Bent-wing Bat
Disjunct distribution but moderately abundant. Small numbers in a lava cave at Pomborneit, Stony Rises; a sandstone sea cave at Cape Patton and a limestone sea cave at Cumberland River.

Many of the above-mentioned species have been found in relatively few locations around Geelong, but this reflects the early stage of our survey project. Future work is expected to greatly expand the known range of these species and to discover several more species.
The following species are possible contenders:

Family Rhinolophidae

(i) *Rhinolophus megaphyllus* Eastern Horseshoe-bat
Species of *Rhinolophus* inhabit caves in eastern and northern Australia, extending west to near Melbourne in Victoria. No valid reason for the absence of *R. megaphyllus* from western Victoria other than lack of survey effort exists. We believe that at least several individuals inhabit the limestone at Cumberland River with *M. schreibersii,* but this remains to be confirmed by capture of a specimen.

Family Vespertilionidae

(ii) *Nyctophilus timoriensis* Greater Long-eared Bat
This species is known to inhabit dry, semi-arid associations in north-western Victoria. Based on a recent observation of a large Nyctophilus at Inverleigh, the authors believe that *N. timoriensis* may exist in the local area.

(iii) *Myotis adversus* Large-footed Myotis
M. adversus is a typical species of coastal forest areas with permanent water. On this basis, most of the Otway coastline is suitable. The species is usually a cave roosting animal but is known to roost in dense foliage, old bridges, culverts etc.

(iv) *Nycticeius* sp. or spp. Broad-nosed Bat sp. or spp.
The genus *Nycticeius* is currently in taxonomic disarray and is subject to detailed revisionary work at present. However, at least one – possibly two, of the currently recognised forms are quite likely to occur locally, i.e. *N. balstoni and N. orion.*

Family Molossidae

(v) *Mormopterus planiceps* Little Mastiff-bat
This species almost certainly inhabits the woodland, farmland etc. of the basalt plains around Geelong.

SUMMARY

The authors have recorded 13 species of bats of four families in the Geelong-Otway District. Many of these are widespread in the area, some are very abundant. The known range of these species is expected to be greatly expanded by future work and another five species to be confirmed as occuring locally.

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L.E. Conole, 85 Clarence St., Geelong West, 3218.
G.A. Baverstock, 13 Helena St., Highton, 3216.

Mammals of the Inverleigh Common Flora Reserve: additional species

Lawrie Conole and Grant Baverstock

The mammal fauna of the Inverleigh Common was described by Conole and Baverstock (1982). This short paper is published as a further note, following a short but fruitful bat survey, including trapping on 30 January, 4 February and 21 February 1983.

Order Chiroptera
Family Molossidae

Tadarida australis White-striped Mastiff-bat
Recognised in flight on all trap nights. Abundance unknown.

Tadarida australis White-striped Mastiff-bat
Recognised in flight on all trap nights. Abundance unknown.

Family Vespertilionidae

Pipistrellus tasmaniensis Great Pipistrelle
A female adult was captured at the Teesdale end on 30 January 1983. Normally regarded as a bat of high rainfall montane forests, the capture site is an unusual one. The authors and other workers (I. Temby pers. comm., H. Parnaby pers. comm.) have, however, caught *P. tasmaniensis* in similarly dry, open habitat in the Grampians.

Eptesicus sagittula Large Forest Eptesicus
One of the most frequently caught species at Inverleigh, *E sagittula* appears to be abundant throughout the Geelong-Otway district.

Eptesicus regulus King River Eptesicus
A very low proportion of bats caught were *E regulus;* four out of 242. We have found *E regulus* to be usually associated with mesic habitats such as that found in foothill and montane forests.

Eptesicus vulturnus Little Forest Eptesicus
This was the most abundant bat caught and is a typical species of dry, open habitats.

Order Lagomorpha
Family Leporidae

Lepus capensis Brown Hare
Sighted on several occasions. Status unknown but certainly less abundant than its ubiquitous cousin the rabbit. *Oryctolagus cuniculus.*

CONCLUSION

The addition of these 6 species brings the total to 20 species, of which 6 are introduced.

This apparent diversity is offset to some degree when it is considered that most mammal surveys do not include bats.

The Brisbane Ranges for example, without any small mammal survey work, have 13 species recorded by Conole (1980) and a further six species are known (Conole & Baverstock, unpublished data).

TABLE I:
RESULTS OF BAT SURVEY OF INVERLEIGH COMMON FLORA RESERVE

SPECIES	NUMBER TRAPPED 30/1/83	4/2/83	25/2/83	CHANCE SIGHTING
Tadarida australis	–	–	–	✓
Pipistrellus tasmaniensis	1	–	–	
Eptesicus sagittula	34	4	8	
E regulus	1	–	3	
E vulturnus	82	5	59	
Chalinolobus gouldii	19	9	16	
Nyctophilus geoffroyi	1	–	–	✓
TOTALS	**138**	**18**	**86**	**242**

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L.E. Conole, 85 Clarence st., Geelong West, 3218.
G.A. Baverstock, 13 Helena St., Highton, 3216.

* * *

Birds at Urquhart's Bluff: before and after the fire

Wade Chambers

Before the fires of Ash Wednesday, a small enclave of houses, north of Airey's Inlet and behind Urquhart's Bluff, lay nestled in the arms of Angahook Forest Park. This area, which was to receive the full brunt of the firestorm, had supported a flourishing community of birds and animals that my family had come to know very well in the time since our house was built there four years ago.

Kangaroos and wallabies came almost every day to gaze on the little patch of lawn directly adjacent to the house, and 'Mrs. Thrush' appeared at regular intervals during the day on the kitchen window sill, a single sharp whistle usually eliciting cheese delivered on the hand of our four year old daughter. Although we couldn't resist occasionally throwing seed to a large flock of rosellas, for the most part our bird-attracting activity was confined to the encouragement of the local native shrubs and heathy ground-cover that separated the tree clumps and windrows, mainly Messmate and Golden Wattle, across our five acre block. Near the house we had planted a large array of flowering natives, especially Grevilleas of which we had established more than fifty species. This had been rewarded by the daily appearance of a number of honeyeaters, such as the bright New Holland, the bold White-eared, the beautiful Tawny-crowned, and the Eastern Spinebill, which always makes me think of North American Hummingbirds.

Parrots were also plentiful and included daily Crimson Rosellas and Sulphur-crested Cockatoos, less commonly Yellow-tailed Black Cockatoos, with occasional visits from Blue-winged and King Parrots, Galahs, and Gang-gang Cockatoos. The Sacred Kingfisher was a regular, if infrequent, visitor, while the laugh of the Kookaburra was heard almost every day. Positive sightings of a total of nearly fifty species had been made on our block in the year before the fires. The most common of these were the Magpies, Currawong (Pied and Grey), Raven, Shrike-thrush, White-throated Treecreeper and Scarlet Robin. Others less often seen were the Black-faced Cuckoo-shrike, Cuckoo (Pallid and Horsfield's Bronze), fantails, thornbills and whistlers, the Common Bronzewing and the Spotted Pardalote. Wedge-tailed Eagles were occasionally sighted soaring over Urquhart's Bluff, and a Black-shouldered Kite was seen several times. Our rarest resident was the timid, though strikingly handsome, Southern Emu-wren, now and then seen well down from the house. Our greatest joy, however, was surely the little Red-browed Firetails and the colony of Superb Blue Wrens, never far from the house and constantly chattering in the background of our daily lives.

We must presume that all resident birds died in the fires. The first Shrike-thrush to appear a month later was certainly not 'Mrs. Thrush', nor could any bird have long survived in the cinders and ash that remained of our garden. Even now, five months along, our house (which against all probability survived the disaster) stands from day to day in a barren silence, broken only occasionally by the three note bell-like whistle of the rosellas or the sad warbling of the magpie.

Slowly new birds are arriving, finding some cover in the epicormic eucalypt growth. Within the first six weeks we made at least one sighting of each of the following: Magpie, Shrike-thrush, Rosella, Pied and Grey Currawongs, Raven, Welcome Swallow, and Cockatoos both Black and Sulphur-crested. The Masked Lapwing has been heard at night but not yet seen by day. On April 4th came the first White-eared Honeyeater and a day later the first Eastern Spinebill. Shortly after that arrived three Jacky Winters (never seen before the fire) and last week a Flame Robin (whereas before the fire we had seen only the Scarlet). As spring approaches, and the garden is gradually replanted, the appearance of each new bird, however much taken for granted in the past, is now the cause of great excitement and mad dashes to find the binoculars. We have great confidence that within a few years the population will return to 'normal' with certain variations, but we fear that some, such as the Southern Emu-wren, may be lost to us.

D.W. Chambers, Box 73, Airey's Inlet, 3221.

Moggs Creek, 30 July, 1983

G.F.N.C. Otway Regeneration Survey — Progress Report

Valda Dedman

Six months after the Ash Wednesday fire, it is the plants that show the most obvious signs of recovery. Good rains have no doubt helped growth and germination and the general impression by late August is one of greenness, not stark blackness. It will be many, many years before the forest returns to something like its former state; creekside vegetation will be much quicker, although its composition may be changed in the short term. The heathland will be the first to recover fully.

We have been visiting Moggs Creek regularly since early March. Because of the wet weather — and the consequent state of the back roads — it was not until 4 June that we made our final choice of heathland study area. We have marked out two sites for a botany survey along the Old Coach Road, one close to the road and adjoining heathland, and one area of true heath.

This heathland has turned out to be a most satisfying spot to survey, because of the number and variety of plants regenerating. Some plants, such as Silver Banksias and Dwarf Casuarinas, shoot up from the rootstock; others, such as wattles and smaller herbs, are growing from seed. Many plants have come into flower, even when only a few centimetres tall.

Orchids in particular have made a fine display. Twelve species have been recorded so far, most of them flowering. Banded Greenhoods were the

Banded Greenhood
Pterostylis vittata
Moggs Creek heathland
4 June, 1983

Blue Fairies
Caladenia deformis
Moggs Creek heathland,
27 August, 1983

earliest, and as spring approaches we have found Waxlips, Blue Fairies, Mosquito, Gnat and Mayfly Orchids, Dwarf and Nodding Greenhoods, and Thick-lip Spider-orchid. Hundreds of Hare Orchids are in bud, and later there will be Leek Orchids and Hyacinth Orchids, and I expect a variety of Sun Orchids and others. Fire is known to promote orchid growth, and perhaps the fire has triggered a response in the Blue Faires, for, as well as the usual single flowers, there are many clumps of up to a dozen blooms tightly packed together.

In the forest area, where the predominant eucalypts are Red Ironbark and Blue Gum, epicormic growth has been steady, so that by late August most trunks and branches showed a dense cover of leaves. Acacias have been coming up from seed, first Black and Sallow Wattles, and later Prickly Moses. Thousands of Tall Sundews have appeared in places, and Scented Sundews have flowered prolifically.

Near the creek the first colonizer was Bracken Fern and by the end of August there was a dense, chest-high growth. Other ferns have shown a remarkable recovery. Several of the Soft Tree-ferns have grown complete new crowns, and fronds have appeared on many smaller ferns, some of which have reached the spore stage. There are several banks of Maidenhair

Fern near the water. The creek has been flowing strongly for several months. In many places the soil is very damp, even waterlogged; mosses and liverworts have made outstanding growth in such places.

The first plant life to appear after the fire was a fungus of the Ascomycetes family. This bright orange fungus was widespread, especially around charcoal. Other fungi to appear have included various gilled types, Coral fungus, Cup fungus, Morel, and a brown papery "flower", probably *Thelyphora palmata.*

One of the great survivors of the fire has been the Grasstree. By the end of May many Grasstrees showed the beginnings of flower spikes, hidden among the newly emerged leaves. Three months later nearly every plant had put up several tall "kangaroo tails" which were starting to be covered with masses of creamy-coloured pollen-laden blossoms. These should attract birds, both nectar-feeding and insectivorous.

Birds are returning very slowly to the burnt areas. The larger, more mobile birds such as Ravens, Currawongs, Kookaburras and Sulphur-crested Cockatoos have been heard nearly every time we have visited the forest or creek. The smaller birds were not seen regularly until the bracken was high or dense enough to provide cover and there was sufficient new growth on the trees to attract insects. By the end of August, however, small flocks of Brown and Striated Thornbills were seen regularly. The Brown Thornbills were showing definite signs of courtship display, fanning their tails and calling loudly with open beaks, so it is to be hoped they will find the bracken attractive for nesting.

Over the heathland Welcome Swallows have been present on most of our visits. Once a small flock of Tree Martins passed by, two White-naped Honeyeaters were observed in a clump of surviving trees, and one sunny morning a Skylark was singing constantly.

A total of 30 species has been seen in the general Moggs Creek area; 22 in the forest/creek environment (of these Pied Currawongs were heard or seen most frequently), 7 in the heathland, and 7 reported from the township area.

Mammal trapping has produced almost no results. Traps have been put out near the creek on two occasions, and twice in the heathland/woodland. The only species captured has been the introduced Black Rat (on two occasions, near the creek). Most small mammals would not have survived the fire, and we must wait for outside populations to build up and recolonize burnt areas.

That some could survive the fire was shown by a sample trapping we undertook at Hutt Gully on 9 April. Seventeen traps were put out. Three Swamp Rats were taken from unburnt vegetation on the seaward side of the

Prickly Moses *Acacia verticillata* near Moggs Creek, 30 July, 1983.

road, one Black Rat in a semi-burned area, and one Brown Antechinus was caught close to the creek in a very badly burned area.

Larger animals have not been seen at Moggs Creek, although fresh wallaby tracks have been noted on several occasions in soft soil by the creek and among the trees opposite the heathland. On the last visit in August we found fresh echidna diggings around the creek.

We have rediscovered the tree formerly used by Yellow-bellied Gliders, but as yet there is so sign of activity.

Echidnas would find plenty to eat, because ants, large and small, have been active ever since the fire. Other insects and invertebrates have been found under rocks and logs. These include centipedes (common), scorpions, millipedes and various small beetles and spiders. Recently in the swampier parts, mosquitoes have been much in evidence.

We have also uncovered Garden Skinks and a Banjo Frog. With the warmer weather more reptiles should appear, and the frog population increase, although as yet there has been no evidence of spawn or tadpoles.

The higher temperatures will also stimulate plant growth, and we look forward to monitoring it and the associated changes in animal and bird life.

Valda Dedman, 69 North Valley Rd., Highton 3216.

Lorne Forest Park Excursion: 15 August 1982

Craig Morley

On a fine, cool, but sunny day, the morning was spent on the walk to Won Wondah Falls on Henderson's Creek. Despite the very low winter rainfall in the area the creek was still flowing.

As many as six eucalypts showing V-shaped scratching characteristic of Yellow-bellied Gliders were noted along this walk.

The afternoon was spent walking to She-oak Falls (not flowing) and Swallow Cave on She-oak Creek.

Two different types of Powerful Owl *(Ninox strenua)* pellets were found. One pellet of coarse grey/black fur was probably from a Common Brushtail Possum *(Trichosurus vulpecula).* The second type of pellet (of which 5 or 6 samples were noted along 10 metres of path) was of light grey soft fur probably of a Yellow-bellied Glider *(Petaurus australis)*

Seventeen fern species were noted including the uncommon Necklace Fern *(Asplenium flabellifolium)* and Tender Brake *(Pteris tremula)*

The day's activities were centred on the She-oak picnic ground.

BIRD LIST

Craig Morley

Yellow-tailed Black Cockatoo *Calyptorhynchus funereus*
Pair flying over treetops.

Gang-gang Cockatoo *Callocephalon fimbriatum*
Heard along Won Wondah Falls Track and a pair in eucalypt along Swallow Cave Track.

Sulphur-crested Cockatoo *Cacatua galerita*
Several heard along Won Wondah Falls Track.

King Parrot *Alisterus scapularis*
Group of 3 or 4 birds feeding along Henderson's Creek bed just upstream of Won Wondah Falls. Several small groups in other areas.

Crimson Rosella *Platycercus elegans*
One party of 3 or 4 near She-oak picnic ground.

Laughing Kookaburra *Dacelo novaeguineae*
Up to 6 around picnic ground.

Tree Martin *Cecropis nigricans*
Small number just above treetops over picnic ground.

Yellow Robin *Eopsaltria australis*
Heard around picnic ground.

Crested Shrike-tit *Falcunculus frontatus*
One seen near picnic ground.

Golden Whistler *Pachycephala pectoralis*
One or two heard along She-oak Creek.

Grey Shrike-thrush *Colluricincla harmonica*
Common. Heard along both tracks, and particularly around picnic ground.

Grey Fantail *Rhipidura fuliginosa*
One heard in picnic ground.

Superb Fairy-wren *Malurus cyaneus*
Common. Noted in particular around picnic ground.

Southern Emu-wren *Stipiturus malachurus*
One party of 4 or 5 near Swallow Cave.

White-browed Scrub-wren *Sericornis frontalis*
Common along gullies.

Brown Thornbill *Acanthiza pusilla*
Common particularly in shrubs along gullies.

Striated Thornbill *Acanthiza lineata*
Two or three individuals noted.

White-throated Treecreeper *Climacteris leucophaea*
Common, Piping call heard frequently as well as two variations of a trilling call. Courtship feeding noted.

Red Wattlebird *Anthochaera carunculata*
Common. Heard frequently.

Yellow-faced Honeyeater *Lichenostomus chrysops*
One or two seen and heard in treetops near picnic ground.

White-eared Honeyeater *Lichenostomus leucotis*
One heard near picnic ground.

Brown-headed Honeyeater *Melithreptus brevirostris*
One heard in same area as previous species.

White-naped Honeyeater *Melithreptus lunatus*
Several small parties in treetops.

Crescent Honeyeater *Phylidonyris pyrrhoptera*
Very common and vocal in treetops.

New Holland Honeyeater *Phylidonyris novaehollandiae*
Small number along Henderson's Creek downstream of Won Wondah Falls. One heard along She-oak Creek.

Eastern Spinebill *Acanthorhynchus tenuirostris*
Small number noted along Henderson's Creek downstream of Won Wondah Falls. Odd birds heard calling in other areas.

Spotted Pardalote *Pardalotus punctatus*
Small number heard around picnic ground and Won Wondah Falls track.

Striated Pardalote *Pardalotus striatus*
One or two heard, along Won Wondah Falls Track.

Red-browed Firetail *Emblema temporalis*
Small numbers heard and seen along tracks.

Australian Magpie *Gymnorhina tibicen*
One or two pairs in picnic ground.

Pied Currawong *Strepera graculina*
One noted along Allenvale Road near picnic ground.

Forest Raven *Corvus tasmanicus*
Odd birds heard and seen in and around picnic ground. Also pair overhead at Swallow Cave.

32 species.

PLANT LIST

Ted Errey and Leila Ramsay

FERNS

Adiantum aethiopicum	Common Maidenhair
Asplenium flabellifolium	Necklace Fern
Blechnum chambersii	Lance Water-fern
Blechnum minus	Soft Water-fern
Blechnum nudum	Fishbone Water-fern
Cheilanthes tenuifolia	Rock Fern
Culcita dubia	Common Ground-fern
Cyathea australis	Rough Tree-fern
Dennstaedtia davallioides	Lacy Ground-fern
Dicksonia antarctica	Soft Tree-fern
Doodia media	Common Rasp-fern
Hypolepis punctata	Downy Ground-fern
Microsorium diversifolium	Kangaroo Fern
Pellaea falcata	Sickle Fern
Polystichum proliferum	Mother Shield-fern
Pteridium esculentum	Austral Bracken
Pteris tremula	Tender Brake

MONOCOTYLEDONS

Gahnia sieberana	Red-fruit Saw-sedge
Pterostylis longifolia	Tall Greenhood
Tetrarrhena distichophylla	Hairy Rice-grass
Tetrarrhena juncea	Forest Wire-grass

DICOTYLEDONS

Acacia dealbata	Silver Wattle
Acacia melanoxylon	Blackwood
Acacia mucronata	Narrow-leaf Wattle
Acacia stricta	Hop Wattle
Acacia verniciflua	Varnish Wattle
Acaena anserinifolia	Bidgee-widgee
Amyema pendulum	Drooping Mistletoe
Bedfordia arborescens	Blanket-leaf
Bursaria spinosa	Sweet Bursaria
Cassinia aculeata	Common Cassinia (Dogwood)
Casuarina stricta	Drooping Sheoak
Clematis aristata	Australian Clematis

Comesperma volubile	Love Creeper
Coprosma hirtella	Rough Coprosma
Coprosma quadrifida	Prickly Coprosma
Desmodium varians	Slender Tick-trefoil
Dichondra repens	Kidney-weed
Drosera auriculata	Tall Sundew
Epacris impressa	Common Heath
Eucalyptus globulus	Southern Blue Gum
Eucalyptus obliqua	Messmate Stringybark
Exocarpos cupressiformis	Cherry Ballart
Gonocarpus tetragyna	Common Raspwort
Goodenia lanata	Trailing Goodenia
Goodenia ovata	Hop Goodenia
Gratiola latifolia	Austral Brooklime
Mentha laxiflora	Forest Mint
Nestegis ligustrina	Privet Mock-olive
Olearia argophylla	Musk Daisy-bush
Olearia erubescens	Moth Daisy-bush
Olearia lirata	Snow Daisy-bush
Oxalis corniculata	Yellow Wood-sorrel
Pimelea axiflora	Bootlace Bush
Pimelea ligustrina	Tall Rice-flower
Pittosporum undulatum	Sweet Pittosporum
Pomaderris aspera	Rough Hazel Pomaderris
Prostanthera lasianthos	Victorian Christmas-bush
Prostanthera melissifolia	Balm Mint-bush
Pultenaea daphnoides	Large-leaf Bush-pea
Sambucus gaudichaudiana	White Elderberry
Senecio latus	Variable Groundsel
Spyridium parvifolium	Australian Dusty Miller
Stellaria pungens	Prickly Starwort
Stylidium graminifolium	Grass Trigger-plant

C. Morley, 22 Fairmont St., Newtown, 3220.

Bird List for Campout at Meredith, Brisbane Ranges 24-26 September, 1982

Craig Morley

The campsite was in open eucalypt forest, about a kilometre from the Moorabool River, 5km east of Meredith. An earlier camp there (August 1975) had recorded 35 bird species. On this campout, despite the dry year and the overcast weather (there were early morning showers and sunny periods later in the day), 64 species were recorded. This is not likely to be due to an increase in the number of species, but rather because more attention was paid to birds on the 1982 campout.

White-faced Heron *Ardea novaehollandiae*	One heard and seen flying near treetops early on 25 September.
Australian Shelduck *Tadorna tadornoides*	One pair flying downstream early on 25th.
Wedge-tailed Eagle *Aquila audax*	Possibly the same pair seen overhead several times. Also, an immature with very pale head and underwings seen once.
Brown Goshawk *Accipiter fasciatus*	One harassing Eastern Rosellas near camp on 25th. One high overhead on 26th.
Brown Falcon *Falco berigora*	Pair hawking along hills to east of the river on 25th.
Dusky Moorhen *Gallinula tenebrosa*	One heard along river at night on 24th.
Masked Lapwing *Vanellus miles*	Pair flying over farmland on 25th.
Galah *Cacatua roseicapilla*	Common. Usually seen flying over. Numbers from 1 to 6.

Long-billed Corella *Cacatua tenuirostris*	Pair flying west over farmland ahead of 3 Galahs on 25th.
Sulphur-crested Cockatoo *Cacatua galerita*	Loose flocks ranging from 6 to 20 in the morning and evening.
Crimson Rosella *Platycercus elegans*	Common. Noisy flocks with up to 6 or 7 immatures.
Eastern Rosella *Platycercus eximius*	3 or 4 pairs.
Pallid Cuckoo *Cuculus pallidus*	Calling strongly at dawn on 25th and 26th. Calling less frequently and strongly during the day.
Fan-tailed Cuckoo *Cuculus pyrrhophanus*	Heard 2 or 3 hours before dawn on 25th. Calling frequently and strongly at dawn.
Black-eared Cuckoo *Chrysococcyx osculans*	One along river downstream from camp. Single quiet mournful note heard several times.
Horsfield's Bronze-Cuckoo *Chrysococcyx basalis*	Common. Sibilant trilling call and mournful downward note heard. Mating observed, preceded by trilling call from both birds.
Shining Bronze-Cuckoo *Chrysococcyx lucidus*	Common. Heard throughout area.
Southern Boobook *Ninox novaeseelandiae*	Up to 3 heard on the night of the 25th.
Laughing Kookaburra *Dacelo novaeguineae*	Common. Calling up to an hour after sunset on 24th.
Skylark *Alauda arvensis*	Two heard calling over farmland east of the river.

Welcome Swallow *Hirundo neoxena*	4 over farmland and open woodland around camp.
Black-faced Cuckoo-shrike *Coracina novaehollandiae*	One noted on 25th.
Scarlet Robin *Petroica multicolor*	One male near camp, calling from dawn throughout 25th and 26th.
Yellow Robin *Eopsaltria australis*	Only one pair and a single bird noted along river valley.
Jacky Winter *Microeca leucophaea*	Common. Seen and heard frequently. Particularly vocal in dawn chorus.
Crested Shrike-tit *Falcunculus frontatus*	2 or 3 birds noted.
Golden Whistler *Pachycephala pectoralis*	Male observed bathing in river. Several brown birds.
Rufous Whistler *Pachycephala rufiventris*	One calling near camp. Heard in Stringybark woodland and along ridge near river.
Grey Shrike-thrush *Colluricincla harmonica*	Common. Heard in all areas, particularly along river valley.
Restless Flycatcher *Myiagra inquieta*	2 or 3 noted.
Grey Fantail *Rhipidura fuliginosa*	Several noted.
Willie Wagtail *Rhipidura leucophrys*	Common, particularly in more open areas.
Superb Fairy-wren *Malurus cyaneus*	Common; a number of family groups noted along gullies.
White-browed Scrubwren *Sericornis frontalis*	Common in undergrowth along river.

Speckled Warbler *Sericornis sagittatus*	Pair seen near camp, associating with Buff-rumped Thornbill.
Brown Thornbill *Acanthiza pusilla*	Several noted. One near camp gave a rasping call on several occasions.
Buff-rumped Thornbill *Acanthiza reguloides*	Common. Heard in all areas. Nest with young, on ground in grass tussock, near camp.
Yellow-rumped Thornbill *Acanthiza chrysorrhoa*	One pair with a nest in mistletoe, near camp on edge of farmland.
Striated Thornbill *Acanthiza lineata*	More numerous in stringybark woodland.
Varied Sittella *Daphoenositta chrysoptera*	One party of 3.
White-throated Treecreeper *Climacteris leucophaea*	Common. Piping call often heard. Mellow trilling call also heard frequently.
Brown Treecreeper *Climacteris picumnus*	Several small parties. Apparently restricted to gullies and slopes.
Red Wattlebird *Anthochaera carunculata*	One in roadside plantation near camp.
Yellow-faced Honeyeater *Lichenostomus chrysops*	Very common.
White-eared Honeyeater *Lichenostomus leucotis*	Several heard.
White-plumed Honeyeater *Lichenostomus penicillatus*	Common; restricted to smooth-barked eucalypts.
Brown-headed Honeyeater *Melithreptus brevirostris*	3 or 4 small parties noted.

White-naped Honeyeater *Melithreptus lunatus*	Common. Parties heard and seen in all areas.
New Holland Honeyeater *Phylidonyris novaehollandiae*	Common along river and gullies.
Eastern Spinebill *Acanthorhynchus tenuirostris*	Small numbers heard along gullies.
Mistletoebird *Dicaeum hirundinaceum*	Several birds, in association with mistletoe.
Spotted Pardalote *Pardalotus punctatus*	Common. One nest in the ground, on a slope with an easterly aspect.
Striated Pardalote *Pardalotus striatus*	Very common. Heard in all areas. Two nest hollows noted.
European Goldfinch *Carduelis carduelis*	One heard on east side of river; also one or two over farmland.
House Sparrow *Passer domesticus*	Several around farmland adjoining campsite.
Red-browed Firetail *Emblema temporalis*	Party of 15 seen on border of farmland and woodland near camp, several times on 25th.
Olive-backed Oriole *Oriolus sagittatus*	One heard calling on occasions; up to 2 hours before dawn on 26th.
White-winged Chough *Corcorax melanorhamphos*	One flew past camp on 25th. One old nest found.
Australian Magpie-lark *Grallina cyanoleuca*	Common on adjoining farmland.
Dusky woodswallow *Artamus cyanopterus*	3 or 4 pairs noted.

Australian Magpie *Gymnorhina tibicen*	Very common. Nest near campsite. Very vocal all along river during dawn chorus.
Grey Currawong *Strepera versicolor*	One or two near camp on 25th.
Australian Raven *Corvus coronoides*	Common.
Little Raven *Corvus mellori*	Several birds over farmland, identified by higher-pitched calls.

Craig Morley, 22 Fairmont Street, Newtown, 3220.

HOUR COUNT No. 44
WENTWORTH N.S.W.

Roy Wheeler

Wentworth is situated at the junction of the Murray and Darling Rivers, and for seventy years was the nucleus for river trade between New South Wales, Victoria and South Australia. Today the rivers are still important because they provide water for the irrigation settlements, and they are responsible for the wonderful boating and fishing in the area. The famous Murray Cod is being caught in ever-increasing numbers in the rivers at Wentworth. Wentworth was named after the explorer and politician William Charles Wentworth on 21st June 1859. Its first settlers were overlanders who established a camp at the junction of the rivers in 1840. The first houses were built in 1851 and the town surveyed in 1858. The district was proclaimed a Municipality in 1879.

Being at the junction, Wentworth was the clearing house for trade between the States, and an important place for the Murray/Darling river boats and horse-drawn coaches. Much of the wool clip in southern N.S.W. was brought to Wentworth by camel, bullock and donkey team for shipment on the steamers. In the 1890's as many as 31 steamers tied up at Wentworth at the one time. Horse-drawn coaches provided travel and mail services to other centres in N.S.W. and Victoria.

Undoubtedly the most famous river junction in Australia is that of the Murray and Darling Rivers at Wentworth. The Murray Darling system is the world's fourth largest and drains one fifth of Australia. Charles Sturt discovered the junction on the 23rd January 1830, whilst on his journey down the Murray and back in 1829-30. Wentworth is 830km from the sea and the river level is 30.8 metres above sea level.

The first monument to a tractor is at Wentworth. In the 1956 floods the work of a Ferguson Tractor saved the town from flooding and a monument was erected in its honour.

In July 1983 Chris Sonter, Secretary and President of the Mildura Bird Observe's Club, and I did an hour count at the Junction and herewith are the details.

At Junction of the Murray and Darling Rivers at Wentworth, N.S.W., July 6, 1983. Fine with a cool southerly and some sun. 2.20 to 3.20 p.m. Chris Sonter and Roy Wheeler. Birds in order of sighting:

Pelican, 13; Black Duck, 5; Darter, 2; Pied Cormorant, 7; Silver Gull, 24; Whistling Kite, 6; Dusky Moorhen, 2; Black Cormorant, 36; Coot, 12; Caspian Tern, 11; Pied Butcherbird, 1; Kookaburra, 1; Magpie-lark, 6; Noisy Miner, 4; White Egret, 1; Rock Dove (Domestic Pigeon) 5; Starling, 2; Brown Weebill, 2; Little Raven, 1; Little Black Cormorant, 1; Galah, 9; Straw-necked Ibis, 5; Little Thornbill, 2; Superb Fairy Wren, 2; House Sparrow, 1; Australian Magpie, 1; Red-rumped Parrot, 1; Little Pied Cormorant, 1.

Total of 28 species and 164 individuals.

My thanks to the Wentworth information booklet for most of the details.

Roy Wheeler, 59a Upton Road, Windsor, 3181.

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Editorial

Participation in the activities of the Geelong Field Naturalists Club involves learning and sharing and discovery — if we're lucky, discovering something for the first time: a flower or bird or animal new to the area... or observing something that others will want to hear or read about. This issue of the *Naturalist* is rather a "sharing" issue, reporting interesting or exciting observations, mostly by the birdwatchers.

One of our regular writers — almost every issue for the past eleven years — is not here this time. There is no "Hour count" — Roy Wheeler has been too busy to sit restfully down for an hour and count the birds he sees. Last year he recorded 601 birds species in Australia, more than most of us see in a lifetime! When (if ever) he slows down, perhaps he'll share the highlights with us. It would be an interesting exercise to repeat some of his earlier counts, Belmont Common for example, and see how things have changed. Jack Wheeler has not been idle either, and the book he co-authored with Roger Thomas, *Birds of the Ballarat Region,* with its fine colour photographs, especially those of Ron Lavery, will be enjoyed and, most importantly, *used* by all birdwatchers and bush lovers in the region.

Margaret Cameron.

A Visitor from the Mallee: a White-fronted Honeyeater in Geelong

Jess and Arthur Collins

Early in the morning of the 14th July we heard an unfamiliar bird call in the garden, but could not locate the bird responsible. Later in the morning, among the sparrows and New Holland Hhoneyeaters squabbling at our syrup bottle, a strange bird appeared. We soon identified it as a White-fronted Honeyeater *(Phylidonyris albifrons)* which we had previously seen at Wyperfeld and Hattah. However, we had never before enjoyed such a close and prolonged observation as on this occasion, through our kitchen window at a range of about 4 metres.

It is a bird of the arid centre of Australia, and in Victoria is generally confined to the mallee scrubs of the northwest corner. Trevor Pescott *(Birds of Geelong,* 1983) records four sightings in the Geelong district between 1957 and 1981, at the You Yangs, Werribee, Point Addis and Lara, and now it has turned up quite at home in a surburban garden. It has visited the feeding station on four consecutive days so far, and as it only stays for a few minutes we have probably missed it at other times.

It is easily distinguished from its congener the New Holland Honeyeater *(P. novaehollandiae)* by its brown striped back with touches of yellow, the white frontal patch which encircles the eye, black throat and lightly striated underside and the dull yellow wing-patch which contrasts with the bright gold of the New Holland. It appeared to be more aggressive than the latter, having no trouble in out-facing the sparrows, which the New Hollands rarely manage. However, on occasion, it was chased right away by the resident Red Wattle-birds which apparently regarded it as an interloper.

J. & A. Collins, 9 Warwick St., Herne Hill, Geelong, 3218.

Fish death after a flash flood in the Barwon River

Trevor Pescott

On Wednesday evening 23 February 1983, just one week after the disastrous Eastern Otway bushfires, over 100mm of rain fell in a storm centred over parts of the Barrabool Hills. The intensity of the rainfall, its duration, and the area covered, provided a massive runoff into the Barwon River through two narrow gullies just below the Pollocksford Bridge.

The runoff carried surface soil and a great deal of sheep manure from the almost-bare paddocks, and dumped it all into the Barwon. A stretch of the river downstream from the bridge was covered with a layer of debris and manure at least 100mm thick.

The resultant drop of oxygen in the water caused a massive loss of animal life, and on the Saturday morning following the storm I visited the area with Stuart Lamb, who lives nearby, and who first observed the situation on Friday 25 February. We were able to see some of the fish that he had found in the river on the previous evening.

The most surprising and certainly the most alarming discovery was about 12 huge European Carp, fish which must have weighed about 10 kilograms each. Other fish that had died included Brown Trout and Tench as well as an enormous number of small hardyheads.

Overnight, between Mr. Lamb's first visit on Friday afternoon, and our arrival on Saturday morning, a flow of water had begun to clean the river, and a lot of the surface debris had been broken up. That flow which had perhaps come from the rainfall in the Leigh River catchment, was quite effectively removing much of the pollution downstream.

Several eels had survived and many of the fish that Mr. Lamb had watched gasping for air on Friday afternoon had gone. He described the surface of the water then as a "moving mass of fish", each trying to get enough oxygen to survive. He noted the broad, dark backs of the fish as they reached for the surface to breathe. None of this was in evidence on Saturday morning and perhaps the flush of the river water from the Leigh had been enough to give this large number of fish a reprieve.

Most surprising was the enormous number of small fish. As far as I could see they were mainly hardyheads — I didn't see any galaxiads amongst them. There was also quite a large number of shrimps washed into the shallows. Many of the small fish had survived, and patches of the river edge had a teeming mass in the shallows.

There was no evidence of platypus in the river although Mr. Lamb had seen two upstream from the polluted area on Friday. They apparently were surviving although discomforted by the extent of pollution in the river.

Several sheep had got into the water and had drowned; either they were caught on the bank when the water rushed down the gullies or they may have waded in trying to get drinking water and had broken through the thick crust of debris.

The Barrabool Hills, like so much of the countryside then, were bare of all but the smallest margin of vegetation. There was just a hint of green across some of the Hills, no doubt as a result of the rain that fell there on Wednesday night.

Driving back along the Barrabool Road to Ceres, it was interesting to see several areas where the runoff had carved erosion gullies on the hillsides.

The extent of the polluted section of river was only the one to two kilometres immediately downstream of Pollocksford Bridge.

T.W.Pescott, 4 Victoria Terrace, Belmont 3216.

Brown Trout, 30cm.

European Carp

Beautiful Firetail, photographed in Tasmania by Trevor Pescott.

Beautiful Firetails *(Emblema bella)* at Anglesea

Harry Kroger

Trevor Pescott's *Birds of Geelong* records observations of the Beautiful Firetail in our area until the early 1960's. From November 1981 to December 1982, there were several reports.

Five Beautiful Firetails and their activities were observed by seven people; Margaret Cameron, Ina McIntyre, Craig Morley, the Sherwoods, and the Krogers.

When	7th November, 1981. Early afternoon.
Where	Disused gravel pits, Harvey Street, Angelsea. Warm, sunny day, light wind.
Number	Adults 2, Juvenile 3. Young were identified by the dark bill, where the bill of the adult is red.
Vegetation	Open timber with Tea-tree and other low scrub.
Activity	Parents collecting food and feeding begging young. When disturbed the family flew from the scrub where the young were being fed, across the road to a tall eucalypt tree.

H. Kroger, 102 Roslyn Rd, Belmont, 3216.

Editors Note:

Lawrie Conole saw a Beautiful Firetail near the coal mine at Angelsea in November 1981.

A single male bird (identified by its white eye-ring) was seen on 23 May 1982 by Marilyn Hewish and Mary White, on No. 2 Road near its junction with Distillery Creek Road, Anglesea.

On 5 December 1982, during the Challenge Bird Count, a single bird was seen by Marilyn Hewish, Margaret Cameron and others, in thick Tea-tree near the reservoir on Forest Road, Anglesea.

There have been no reports since the fires of Ash Wednesday, 1983.

Cockatiels and Woodswallows at Bannockburn

Ina McIntyre

One day in November 1982, Lorna Chappell and I had just completed a 5-minute count for the Rolling Bird Survey at one of our checkpoints, a dam on the edge of the Bannockburn forest, long dry in this drought year and predictably lacking in the variety of birds normally found there. We were alerted by a bird call neither of us recognized. A moment later, to our surprise, a Cockatiel *Nymphicus hollandicus* flew to a dry tree in a paddock across the road from the forest and regarded us, while we waited to see if he would enter one of the many holes provided by broken branches.

Eventually, however, he flew away, and we were left wondering if his presence south of the divide was due to the even more severe drought in the north of the state. Half-forgotten memories of another sighting, several years ago, of a small group of Cockatiels splashing in a roadside pool not far from that very spot appeared to contradict that idea, but a later check on my records showed that we had seen the group on 26 January 1978, and that too had been a hot dry summer. The roadside pool was accounted for by the fact that 3 days earlier a heavy thunderstorm had brought 82 points of rain to Geelong. A few weeks earlier we had seen Cockatiels beside the road at Maude.

So it all fitted in, and it seemed that the drought was responsible for the recent visitor. This prompted me to check past records for reference to the presence of White-browed Woodswallows *Artamus leucorhynchus* in the area, to see if they too chose to make an appearance when conditions were hot and dry. We had seen them at Bannockburn some years ago, and then not till Spring 1982, when we saw a flock of 18 there in October. Up to the time of writing, January 1983, we have since seen them there many times, often in quite large flocks.

When I checked, sure enough my records showed that we had seen them at Bannockburn in the same hot dry summer that had brought the Cocktiels further south than usual. I found that we had seen the White-browed Woodswallows there on 30 December, 1977 while in November of that year we had seen both Masked and White-browed Woodswallows at a dam on the road through the Inverleigh Common.

It was all most satisfying, and one more example of the fun you can have if you make bird-watching your hobby.

Ina McIntyre, 383 Myers St, East Geelong, 3219.

More on Suburban Birds in a Newtown Garden

Theo Trickett

For the first time in over 20 years, on 20 September, 1982 at 8.50 a.m., an Eastern Shrike-tit *(Falcunculus frontatus)* visited our garden. He was browsing in the silver birches, feeding on catkins. This was a very pleasant surprise, and a surprise later to learn that they are frequently seen at Buckley's Falls. And on 24 March, 1983, on a walk along the river, in a small eucalypt in the picnic area just north of Queens Bridge, there were three Eastern Shrike-tits, the young one being fed by both parents. They all completely ignored me, although I was only a couple of feet from the small tree.

It may be of interest that although I knew that White-naped *(Melithreptus lunatus)* and Yellow-faced *(M. chrysops)* Honeyeaters visited our garden during each year, it was not until reading one of T.R. Garnett's Gardening Notes in *The Age* some years ago, when he mentioned that these two honeyeaters left his garden (at Blackwood) in April that I noticed that they arrived in our garden a few days later! Yellow-faced are noted on 9 April 1981 to 18 October 1981, and White-naped 23 April 1981 to 18 October 1981. These two species are noted as arriving in the garden in early to mid April, and not recorded after about mid-October.

We had a dead hakea last year immediately outside the kitchen window, and on 28 April 1982, it was delightful to see five species of honeyeaters all together on it – White-naped, Yellow-faced, Eastern Spinebills *(Acanthorhynchus tenuirostris)*, New Holland *(Phylidonyris novaehollandiae)* and White-plumed *(Lichenostomus penicillatus)*. But after all, lots of delightful things happen only once.

There were two new, clumsy, juvenile Rainbow Lorikeets *(Trichoglossus haematodus)* recorded on 16 July 1982, one having a really scarlet breast. We've decided the young have a call very like a squeaky tricycle (after all, who rubs two rusty little wheels together?) Perhaps they both survived, but certainly the one with the very scarlet breast has, and it is often at the nectar bottle alone, when all the other Rainbows have temporarily flown off. Since 28 March 1983 we've again heard the squeaky tricycle notes many times, and this new juvenile has a partly scarlet, partly yellow breast, and as he stumbles around the nectar bottle it can be seen that the lower bill is pink, the upper bill brownish-pink. It was amusing on 24 April at 4.45 p.m., to see him twirling around on the seed-container above the nectar bottle. On 16 April at 4.30 p.m. a flight of 15 Rainbow Lorikeets were counted – but there may have been more.

On 11 March 1983 we heard two Gang-gangs in the garden at 6.30 a.m., and at 8.15 a.m. there were 3 males and 1 female feasting on the almonds we had left on the trees for them. These four birds came into the garden to drink and eat the almonds for only about six days, and have not been seen again so far.

In this year of severest drought, when there have been no sprinklers going, we have not seen Song Thrush *(Turdus philomelos)* since September 1982 – when sprinklers were banned – nor our usual summer visitors, the Grey Fantails. All of the garden birds have missed the sprinklers badly, and therefore used the bird-baths much more – it was rather an effort to keep them clean and cool on so many hot days.

On our top back lawn on 18 November there were two young Tree Sparrows *(Passer montanus)* being fed by the parents. It was interesting to see that their face-patch was there, but only faintly.

There is only one note of the Little Lorikeet *(Glossopsitta pusilla)* using the nectar bottle – in company with 4 Musk Lorikeets *(G. Concinna)* – on 11 October 1982 at 8.50 a.m. This group were buzzed off by Red wattlebirds and pushed off by the Rainbow Lorikeets. In fact the Red wattlebirds were so aggressive at about that time that they were even chasing the Rainbows out of the garden.

It was fascinating to read, in Trevor Pescott's recent *Birds of Geelong,* his reference to Pale-headed Rosellas *(Platycercus adscitus).* On 14 February 1982 there was a very agitated Pale-headed Rosella in a neighbor's eucalypts. It had us both prowling around with binoculars either side of the dividing fence! It was the calls that alerted me – Eastern Rosellas often pass over and through our garden, and this was the remembered call of the Pale-headed, and the bird was identified when we saw it. Some 6 or 7 years ago there was an equally unhappy-looking very miserable Pale-headed near those same trees, much lower, and clearly visible.

Mrs. T. Trickett, 47 Craigie Rd., Newtown, 3220.

In-Flight Conflict in Long-eared Bats

Lawrie Conole and Grant Baverstock

Whilst trip-lining bats on dams at two locations, we observed in-flight agonistic interaction among Long-eared Bats *Nyctophilus* spp.

At Moggs Creek, Angahook-Lorne Forest Park, Otway Ranges, where Gould's Long-eared Bat *Nyctophilus gouldi* was the main species involved, several in-flight conflicts were watched by torch light. On all occasions only two bats were involved, and the fight took the form of a fluttering, scolding melee rapidly losing height before breaking up. On one occasion at Moggs Creek, it appeared that both *N. gouldi* and the Lesser Long-eared Bat *N. geoffroyi* were involved in an interspecific conflict.

The call given during the interactions was a harsh, scolding note similar to that heard when *Nyctophilus* struggles and bites in the hand.

Similar interactions were observed near the Forest Lodge in the Victoria Valley, Grampians State Forest, where only *N. geoffroyi* was identified as taking part.

The impression gained at the time was of the similarity of these interactions to the noisy brawls of the House Sparrow *Passer domesticus*.

L.E. Conole, 85 Clarence St., Geelong West, 3218.
G.A. Baverstock, 13 Helena St., Highton, 3219.

Magpie Mimic

Jess Collins

On Saturday 12 November 1983 the male of our visiting pair of magpies sat on the fence by our kitchen window quietly warbling. As usual, when this happens, I took out some scraps and strewed them on the lawn, but instead of flying down at once to gather the food, the magpie sat on the fence within four feet of me and continued his song. To my surprise, as I watched, he distinctly gave the harsh scolding note of the Red Wattlebird, following that by its higher "peeow-peeow" call. Various sharp tweets which I could not recognise came next, then very clearly the bird called exactly like a Magpie-lark "peewee-peewee". I watched his throat moving, and this mimicry was produced as effortlessly as his continued soft warbling. I stood quite still — amazed and delighted — for about five minutes until the magpie flew down, collected a large beakful of food and flew off, doubtless to feed this year's chick which the parents had already brought here earlier for a handout.

In all the years that magpies have come to our garden, we have never before heard any mimicry. On looking-up the bird books, it is mentioned in the *Readers Digest Complete Book of Australian Birds* as occurring at times in autumn, and Graham Pizzey refers to quiet subsong including mimicry, without stating a time of year. It appears that magpies can produce mimicry in late spring as well as in autumn.

J. Collins, 9 Warwick Steet, Herne Hill, Geelong, 3218.

Melville Caves Campout, June 12-14, 1982

Valda Dedman

The 1982 Queen's Birthday weekend campout was held at the Melville Caves Scenic Reserve in central Victoria, between Inglewood and Wedderburn. The Reserve, which is managed by the Forests Commission, is surrounded by reserved forest of Grey Box, Red Ironbark and Yellow Gum, and is overlooked by Mount Kooyora, a rocky peak much beloved by bushwalkers. Nearby are remnant patches of Mallee eucalypts.

There are no caves as such, but overhangs and passageways among massive granite tors afforded shelter and a lookout in the goldrush days for bushrangers, among them Francis McNeish (or McNeil or McCallum), otherwise known as Captain Melville. These same tors offered us good vantage points over the surrounding countryside and made it easy to look down on many small birds otherwise difficult to see; loose slabs of rock provided perfect shelter for a number of interesting reptiles; and a variety of plants grew in the crevices.

Thirty five people, including eleven children, camped in near perfect weather, clear, warm and calm, and enjoyed a variety of activities, including evenings around an enormous campfire set against a huge granite rock.

The formal programme began on Saturday afternoon with a visit to the former crystal mine. This had been worked during the second world war to provide quartz crystals for radio sets, and today is much frequented by gem fossickers who seek smoky quartz crystals for dress jewellery. The Murrumbeena Lapidary Club was there in force when we came along, and its members gave us a first hand demonstration of gem hunting as they carefully attacked the abandoned mound with picks and extracted several large manysided crystals, which were washed clean for us to admire and photograph.

We then drove through the varied forest and topped in an area where Red Ironbark and Yellow Gum predominated. Trees in flower attracted honeyeaters, amont them Yellow-tufted, Fuscous and Brown-headed. A Crested Bellbird was heard but not seen, although it may have been close, as these birds are known for their ventriloquist powers. Understory plants in flower included Flame Heath, and Gold Dust Wattle; a number of species was added to the list at this spot.

On Sunday the Mallee bushland near Wychitella was visited. This consists of small isolated remnants of mallee vegetation, very much denuded by former gold mining operations and eucalypt production, and still at risk from both today, especially from gold fossickers with metal detectors. Understory plants were almost entirely absent in some parts and old mine shafts were much in evidence.

Both birds and vegetation were different from those of the granite country. Three Mallee eucalypts, the Bull, the Blue and the Green Mallee were noted. In a small area near the road where there was more ground cover, excellent sightings were obtained of two uncommon birds which are normally difficult to see. These were the Southern Scrub-robin and the Mallee Heath-wren (Shy Hylacola). A pair of Heath-wrens was feeding among the litter on the ground, and seemed almost oblivious of the large number of people around them in the scrub. They are pretty birds with grey backs, bright chestnut rumps, boldly streaked breasts and white tipped tails which they hold cocked in the air, and a conspicuous white mark on the wing.

Mallee Fowls still inhabit this area, and we eventually located a disused mound. Several working mounds are still known for the Wychitella Mallee and this is probably the closest population of Mallee Fowl to Geelong. These birds used to breed as far south as the Brisbane Ranges, but destruction of habitat led to their disappearance many decades ago. There is a distinct possibility that the Wychitella population will also disappear unless these last patches of Mallee are protected.

The Forests Commission have provided a number of walking tracks through the Melville Caves Reserve. On the Monday morning we went part way along a circuit which took us through sone attractive gullies, and up to lookouts where we had fine views over the surrounding countryside. Wrens chittered in the bushes; Dave King produced his usual unusual skink for us to view, and right at the end of our walk a Swamp Wallaby sat and looked at us (and we at it) for several minutes. It was a fitting end to an enjoyable morning. Next time we should spend a whole day walking the complete circuit.

Informal activities let each member pursue his or her own interests. Early morning bird walks were most rewarding, especially around the rocks on top. Pardalotes, both Spotted and Striated, Mistletoebird, several parties of Scarlet and Hooded Robins, and Diamond Firetail were some of the birds seen then. Altogether 46 bird species were observed for the Caves area. Parties of White-browed Babblers were common around the camp and several of their large round communal nests were found, usually in dense wattle bushes. One was obviously being refurbished, since several times birds were seen flying to it with nest material. The nests were made of twigs, with a side entrance.

Ten Honeyeater species were seen, but only one raptor was observed for the whole weekend. However, this sighting, by Graeme Tribe, was a most remarkable one. (See Graeme's account below for details.) Another unusual sighting was by Harry Kroger, of a Speckled Warbler.

Those interested in botany had plenty to keep them occupied, and there were the usual spirited discussions about species identification. 65 plant species were identified for the weekend; these included six varieties of Acacia and three Mistletoes. Several specimens of Blakely's Red Gum were located. This Red Gum *(E. blakelyi)* differs from the River Red Gum *(E. camaldulensis)* in its juvenile leaves, which are much broader and grey green in colour, and from the Forest Red Gum *(E. tereticornis)* which has larger fruits and less conical buds. The Blakely's Red Gums of the Melville Caves area are an isolated westerly occurrence of this species, which is common along the Hume Highway, south to about Violet Town.

Rock Fern was re-emerging around the granite boulders; the pale green tightly curled frond heads were particularly attractive in the early morning sunlight. Rock Correa was also found. This plant was not listed in the Land Conservation Council Report for the area.

Reptiles were hibernating, but easy to find, with Dave King's help, under weathered slabs of granite. Fat-tailed Geckos seemed particularly common, and with their brightly coloured markings of white spots on chocolate or pale brown background, their large protruding eyes and swollen triangular tails, proved a photographer's delight. The Marbled Gecko, though less spectacular, was nevertheless attractively patterned with white diamond-shaped patches along its slate grey back.

Turning over rocks produced other creatures too — a small grey frog, centipedes, scorpions, and various spiders.

The mammal traps were put on the Sunday night, but nothing was found; the area may still have been too dry for much activity.

All in all it was a most enjoyable and interesting weekend, well worth the second look recommended by those who had visited the area with the Club the previous year.

Valda Dedman, 69 North Valley Road, Highton, 3216.

Melville Caves
Bird List

Maned Duck	*Chenonetta jubata*
Collared Sparrowhawk	*Accipiter cirrhocephalus*
Galah	*Cacatua roseicapilla*
Sulphur-crested Cockatoo	*Cacatua galerita*
Purple-crowned Lorikeet	*Glossopsitta porphyrocephala*
Little Lorikeet	*Glossopsitta pusilla*
Eastern Rosella	*Platycercus eximius*
Southern Boobook	*Ninox novaeseelandiae*
Laughing Kookaburra	*Dacelo gigas*
Scarlet Robin (m.&f.)	*Petroica multicolor*
Hooded Robin (m.f.&j.)	*Melanodryas cucullata*
Eastern Yellow Robin	*Eopsaltria australis*
Jacky Winter	*Microeca leucophaea*
Crested Shrike-tit	*Falcunculus frontatus*
Golden Whistler	*Pachycephala pectoralis*
Grey Shrike-thrush	*Colluricincla harmonica*
Crested Bellbird	*Oreoica gutturalis*
Restless Flycatcher	*Myiagra inquieta*
Grey Fantail	*Rhipidura fuliginosa*
Willy Wagtail	*Rhipidura leucophrys*
White-browed Babbler	*Pomatostomus superciliosus*
Superb Fairy-wren	*Malurus cyaneus*
Speckled Warbler	*Sericornis sagittatus*
Weebill	*Smicrornis brevirostris*
Buff-rumped Thornbill	*Acanthiza reguloides*
Southern Whiteface	*Aphelocephala leucopsis*
Varied Sittella	*Daphoenositta chrysoptera*
White-throated Treecreeper	*Climacteris leucophaea*
Brown Treecreeper	*Climacteris picumnus*
Red Wattlebird	*Anthochaera carunculata*
Spiny-cheeked Honeyeater	*Acanthagenys rufogularis*
White-eared Honeyeater	*Lichenostomus leucotis*
Yellow-tufted Honeyeater	*Lichenostomus melanops*
Fuscous Honeyeater	*Lichenostomus fuscus*
White-plumed Honeyeater	*Lichenostomus penicillatus*
Brown-headed Honeyeater	*Melithreptus brevirostris*
White-naped Honeyeater	*Melithreptus lunatus*
New Holland Honeyeater	*Phylidonyris novaehollandiae*
Eastern Spinebill	*Acanthorhynchus tenuirostris*
Mistletoebird	*Dicaeum hirundinaceum*
Spotted Pardalote	*Pardalotus punctatus*

Striated Pardalote	*Pardalotus striatus*
Diamond Firetail	*Emblema guttata*
White-winged Chough	*Corcorax melanorhamphos*
Australian Magpie	*Gymnorhina tibicen*
Australian Raven	*Corvus coronoides*

46 species.

Wychitella Forest Bird List

Common Bronzewing	*Phaps chalcoptera*
Galah	*Cacatua roseicapilla*
Southern Scrub-robin	*Drymodes brunneopygia*
Red-capped Robin	*Petroica goodenovii*
Grey Shrike-thrush	*Colluricincla harmonica*
Grey Fantail	*Rhipodura fuliginosa*
Shy Hylacola	*Sericornis cautus*
Chestnut-rumped Thornbill	*Acanthiza uropygialis*
Yellow Thornbill	*Acanthiza nana*
White-eared Honeyeater	*Lichenostomus leucotis*
Spotted Pardalote	*Pardalotus punctatus*
Yellow-rumped Pardalote	*Pardalotus xanthopygus*

12 species.
Nest of Mallee Fowl *Leipoa ocellata*
Non-working mound in open mallee forest.

Bird lists compiled by Myra Kroger and Valda Dedman.

Collared Sparrowhawk at Melville Caves

Graeme Tribe

Returning from a relatively uneventful afternoon's birdwatching along Back Road, 500 metres from Melville Caves Lookout Road 1 found a patch of bush alive with birdlife — 2 Brown Treecreepers, 2 Yellow Robins, many Purple-crowned Lorikeets and other larger birds. I was frozen, watcing at minimum focal length the 10 Buff-rumped Thornbills feeding on the open ground with about 8 Superb Fairy-wrens. Without warning this most tranquil scene changed completely. 6 metre directly in front in perfect light, I saw an adult Collared Sparrowhawk noiselessly claim a female Superb Fairy-wren. Every other bird left the ground, and warning and panic calls dominated.

The hawk made no movement at all, except slight head movements to cover the sky and view the struggling wren, which, despite the unchanging grip, managed to move its tail quite freely. I studied this beautifully marked hawk with its hypnotic stare, and marvelled at the change of events for what seemed a breathless eternity; but in less than ten minutes it flew with its prey to a dense broken wattle tree about 10 metres away and out of view. I waited motionless in the dead quiet bush for about 5 minutes, burning with curiosity to see how the prey would be disposed of. My approach disturbed the hawk, and it dropped its prey and flew away quietly through the low scrub. The wren that I'd expected to find mutilated, hopped and flew about the bush apparently unharmed.

This was the only bird of prey observed by our club for the weekend, whereas a year before species and individuals were numerous. (Another notable variation from the previous year was the complete absence of Red-backed Spiders beneath the defoliated granite we turned over looking for geckoes and skinks).

Graeme Tribe, 16 Madeley St., Ocean Grove, 3226.

Plant List

Gwen Yarnold

Acacia acinacea	Gold-dust Wattle
Acacia calamifolia	Wallawa Wattle
Acacia decurens	Early Black Wattle
Acacia diffusa	Spreading Wattle
Acacia lineata	Streaked Wattle
Acacia pycnantha	Golden Wattle
Acianthus reniformis	Mosquito Orchid
Amyema miquelii	Box Mistletoe
Amyema pendulum	Drooping Mistletoe
Amyema quandang	Grey Mistletoe
Anguillaria dioica	Early Nancy
Asplenium flabellifolium	Necklace Fern
Astroloma conostephioides	Flame Health
Astroloma humifusum	Cranberry Heath
Briza maxima	Shell Grass
Bursaria spinosa	Sweet Bursaria
Calytrix tetragona	Fringe Myrtle
Cassinia arcuata	Drooping Cassinia (Chinese Teatree)
Casuarina leuhmannii	Bull-oak
Cheilanthes tenuifolia	Rock fern
Correa glabra	Rock Correa
Correa reflexa	Common Correa
Cryptandra amara	Bitter Cryptandra
Cymbonotus preissianus	Austral Bear's-ear
Danthonia sp.	Wallaby Grass
Daviesia virgata	Narrow-leaf Bitter Pea
Dianella revoluta	Flax-lily
Dodonaea cuneata	Wedge-leaf Hop-bush
Drosera whittakeri	Scented Sundew
Eucalyptus aromaphloia	Scent Bark
Eucalyptus blakelyi	Blakely's Red Gum
Eucalyptus goniocalyx	Longleaf Box
Eucalyptus meliodora	Yellow Box
Eucalyptus microcarpa	Grey Box
Eucalyptus obliqua	Messmate
Eucalyptus polyanthemos	Red Box
Eucalyptus sideroxylon	Red Ironbark
Geranium sp.	Crane's-bill
Glossodia major	Waxlip Orchid
Grevillea alpina	Mountain Grevillea
Helichrysum obcordatum	Grey Everlasting

Helichrysum semipapposum	Clustered Everlasting
Hydrocotyle laxiflora	Stinking Pennywort
Leptomeria aphylla	Leafless Currant-bush
Lomandra filiformis	Wattle Matrush
Loudonia behrii	Golden Pennants
Melaleuca decussata	Totem-poles
Microtis sp.	Onion Orchid
Olearia tereifolia	Slender Daisy-bush (Cypress)
Ophioglossum coriaceum	Adder's Tongue
Pelagonium rodneyanum	Magenta Stork's-bill
Pimelea humilis	Common Rice-flower
Pimelea linifolia	Slender Rice-flower
Pleurosorus rutifolius	Blanket Fern
Pterostylis nana	Dwarf Greenhood
Solanum nutans	Nodding Greenhood
Solanum nigrum	Nightshade
Thysanotus patersonii	Twining Fringe Lily

Additional plants in Wychitella area

Eucalyptus behriana	Bull Mallee
Eucalyptus polybractea	Blue Mallee
Eucalyptus macrorhyncha	Red Stringybark
Eucalyptus viridis	Green Mallee
Melaleuca uncinata	Broom Honey-myrtle
Rhagodia hastata	Saloop
Sandalum acuminatum	Quandong

TOTAL 65 species

Some doubt was expressed regarding *Acacia decurrens* (Early Black Wattle) but examination revealed the required feature "branchlets with winglike ridges" so this is correct (Burbidge and Gray: *Flora of the Australian Capital Territory.*

Gwen Yarnold, 6 Skene St, Newtown, 3220.

Lizards

Dave King

Skink

Hemiergis decresiensis; a small skink found under rock and fallen timber, confined to the northern part of Victoria and higher range country of N.S.W.

Skink

Ctenotus robustus; a widely distributed skink in the eastern and northern parts of Australia.

Skink

Morethia boulengeri; found under rocks and fallen timber. This area is probably at the southern extremity of its range.

Black Rock Skink

Egernia saxatilis; one of the larger skinks found in Victoria. It appears to prefer rocky habitats, and particularly likes to shelter under exfoliating slabs of granite. The colour, at least in the southern part of its range, as in this case, is lighter. Grey-brown with distinctive white or cream scales of the upper lip.

Thick-tailed Gecko

Underwoodisaurus milli; a spectacular gecko — widely distributed throughout southern Australia with the exception of Victoria south of the divide. This area is possibly the southern extremity of its range in central Victoria. It is a relatively common gecko in this area. Found under exfoliating slabs during daylight.

Marbled Gecko

Phyllodactylus marmoratus; this Gecko is common in the central areas of Victoria and is the only one normally found south of the Divide.

Wood Gecko

Diplodactylus vittatus; range as for *U. milli.* Shelters under rocks and timber during the day.

Common Eastern Froglet

Crinia signifera; a widely distributed frog of variable colour and habitat. In this area found under rocks.

Moth

Tineodes sp.

Spider

Hemicloea sp. Common in the area under exfoliating slabs of granite.

Dave King, 8 Traum St, Portarlington, 3223.

Bellarine Peninsula Archaeological Survey

The following communication has been received from Jim Stockton and may be of interest to GFNC members seeking a little summer diversion:

An archaeological survey of the Bellarine Peninsula near Geelong will be completed over the next two years. The study is designed to integrate archaelogical survey data with information on the physical and biological environment (see Figure). In this way, the study will describe the distribution of prehistoric sites in relation to their environment.

Historical records are being used to reconstruct the natural environment at the time of the arrival of European colonists.

Particular attention will be given to defining the distribution of the resources used by the Aborigines, especially plant and animal foods. Information on the physical landscape will be used to describe the physiographic provinces and land units in which sites are found.

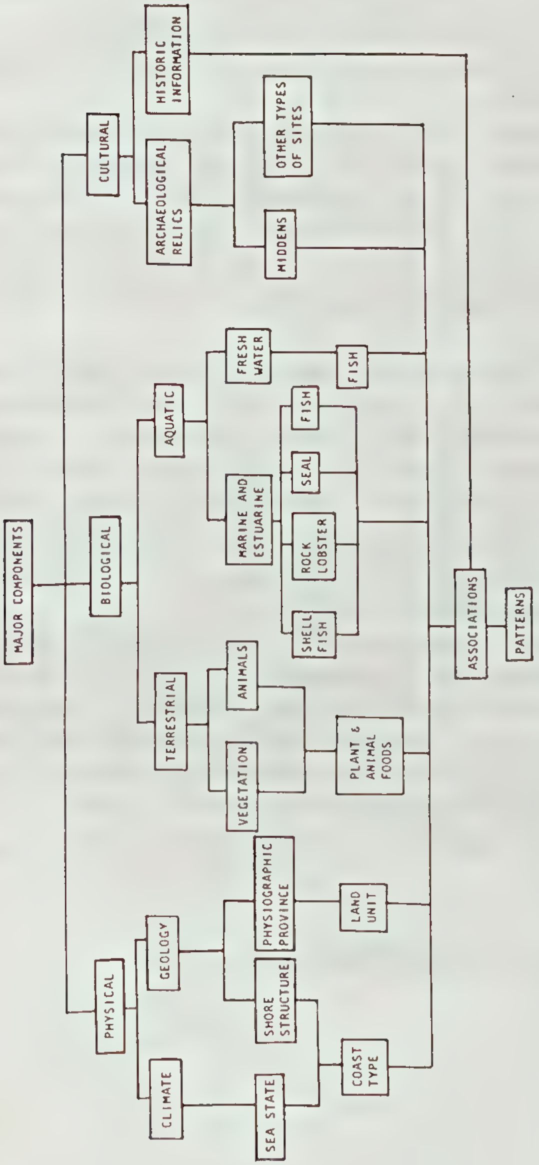
The figure shows some of the relationships of the many biological, physical and cultural aspects.

The archaeological survey will be carried out in two ways. Firstly, already known but poorly documented sites will be relocated and recorded. Secondly, parts of the Peninsula will be surveyed systematically. For inland areas, attention will focus on ploughed paddocks. As virtually all the Study Area has been cleared and cultivated for over 100 years, almost all inland sites have been disturbed to some extent. What sort of information can be retrieved from disturbed sites? This is one of the questions this study will explore. Scarred trees and stone arrangements are among the site types expected in these areas.

The coastal partof the Study Area has been divided on the basis of wave energy and shore type into a number of classes. Parts of each type of coast will be surveyed for middens and any other evidence of prehistoric activity.

The survey information will be coded on specially designed computer forms. Use of the computer will enable a variety of statistical operations to be carries out during the analyses. The aim of this phase of the project is to develop descriptive models of where sites are expected on those parts of the Peninsula not covered during the ground survey.

Anyone wishing to participate in the field survey, library or archival research can find out more by contacting Jim Stockton:



MAJOR COMPONENTS IN THE STUDY OF THE PREHISTORIC GEOGRAPHY OF THE BELLARINE PENINSULA

The Geelong Regional Commission,
P.O. Box 770,
Geelong, 3220.
Telephone: (052) 264852.

Noddy Birds

Wayne Myers

I was interested to read Andrew Wegener's article about the Common Noddy beachwashed at Point Henry *(Geelong Naturalist,* May 1982). Readers may be interested to hear of my rather different involvement with Noddy birds.

In May 1981 I visited the island of Nauru in the central Pacific to assist the Scout Association there. There are two varieties of Noddies which frequent the island — the Black Noddy, which is very common, and the White Noddy. After feeding at sea during the day, the birds spend the night on the island, roosting amongst the rocky pinnacles which remain after the phosphate has been removed. The birds also breed on the island.

The Nauruans catch some of the birds to eat, and whilst there we were invited to join them one night on a catch. It is necessary to be ready before dusk, when the birds return. A net about 1½ metres in length and up to 1 metre in width is constructed on bamboo, and is attached to a 6 metre bamboo pole. The Noddy is lured towards the catcher by the call of other Noddies. In earlier days this sound was made through the nose by one of the Nauruans, but today with Westernisation a portable cassette player is used.

As the bird appears a sweep with the net hopefully results in a catch. Some nights one person may be able to catch up to 30 birds. On our night I caught 4 Black Noddies and my colleague 3. The Nauruan looking after us was going to cook them the next day, but unfortunately the family cat felt that it was more deserving. From what we could understand, Noddies taste something like quail.

It was an interesting experience and Andrew's article brought it back to life.

Wayne Myers, 24 Lomond Terrace, East Geelong 3219.

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NATIONAL MUSEUM
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GEELONG NATURALIST

JOURNAL OF THE GEELONG FIELD NATURALISTS' CLUB

NATIONAL MUSEUM 18 APR 1984 OF VICTORIA

Hon Editor,
Margaret Cameron,
4 Connor Street,
East Geelong, 3219

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Editorial

There have been few articles about fish in the *Geelong Naturalist*, and Rosalind Jessop's list of Swan Bay fish shows how much scope there is for systematic work on the varied forms of life in our region, and how much there still is to learn about the local environment. Similarly Ray Baverstock's thorough survey of 4 years of bird life in his suburban garden includes many fascinating details of their behaviour, foods, and response to habitat change.

One year after the devastating fires, we can all enjoy another change– the exciting recovery of the bush. While it will be a long time before it is fully rehabilitated, the resilience of the plants, and the return of the insects and birds, have been amazing.

Information gathered in our study (and in those of others) should give useful guidance to the authorities responsible for managing the bush, so as to prevent a recurrence of the tragedy without destroying the natural beauty.

Margaret Cameron

Swan Bay study: Rosalind and Angela Jessop netting fish, May 1981.

Fish of Swan Bay

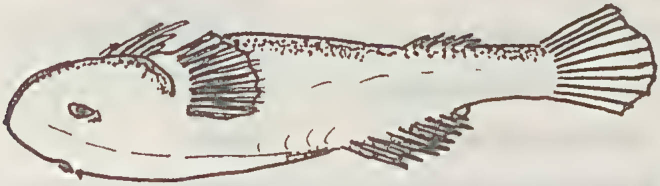
Rosalind Jessop

Swan Bay is a marine embayment of Port Phillip Bay, on the eastern side of the Bellarine Peninsula, just north of Queenscliff. The waters of the bay are shallow, less than 3m deep, and support dense beds of algae and seagrass.

Table 1 lists the fish species collected during a three year (1981-1983) study of fish ecology in Swan Bay. Comparable lists of fish in seagrass beds have been compiled for Westernport Bay, Victoria (Robertson, 1978), the Gippsland Lakes, Victoria (Ramm, 1982), Botany Bay, N.S.W. (N.S.W. State Pollution Control Commission, 1981), and the Blackwood River Estuary, southwest W.A. (Lenanton, 1976).

The number and range of fish species collected from Swan Bay (44) and Westernport Bay (47) are similar, but the population of particular species varies between the two locations, presumably because of habitat differences. The Gippsland Lakes have more than twice as many species (89), due to the wider range of habitats (freshwater to marine) available there. Half the species listed for Swan Bay are not listed for the seagrass areas of Botany Bay, which appears to be outside the southerly range of many of the Swan Bay species. Fewer than half the species collected in Swan Bay are found in the Blackwood Estuary, W.A. The low number of species in common is due to the presence of analogous species – species which occupy the same ecological niche – and because the Blackwood River Estuary has a wider range of habitats (freshwater to marine).

The Clingfish has not been specifically identified yet. It is a small fish (ca. 2cm long) which attachs itself to the bodies of other fish. The specimen collected during this study is the first recorded for Swan Bay or Port Phillip Bay, although they are known to occur elsewhere in Victoria. Similarly, the gobies have not all been identified as the taxonomy is under review. Among the Syngnathidae (pipefish and seahorses) the males carry the eggs in a pouch. The three leatherjackets and the South Australian cobbler have poisonous spines, and the toadfish have poisonous flesh. Wood's siphon fish, found in seagrass areas, appears to be rare in Victoria. Swan Bay is a nursery area for the commercially important fish King George whiting and yellow-eye mullet.



Clingfish

Table 1:
A Checklist of Fish Specimens from Swan Bay

Other areas where the species have been recorded are listed, identified as follows:

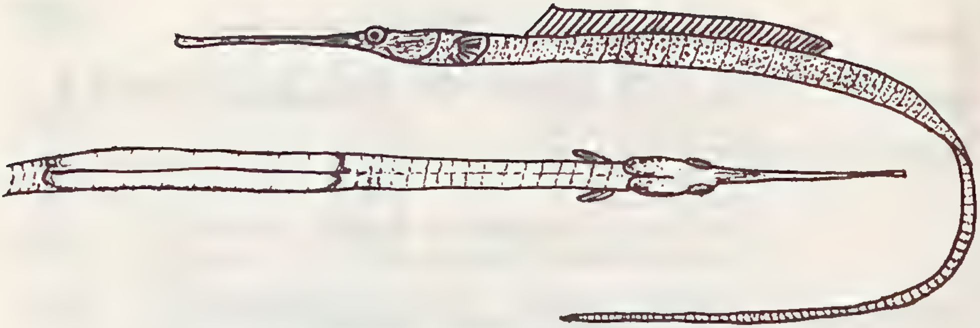
1 - Port Phillip Bay (Lynch, 1966)
2 - Westernport Bay (Robertson, 1978)
3 - Gippsland Lakes (Ramm, 1982)
4 - Botany Bay (N.S.W. State Pollution Control Commission, 1981).
5 - Blackwood River Estuary (Lenanton, 1976)

FAMILY	SCIENTIFIC NAME	COMMON NAME	OTHER AREAS
Apogonidae	*Siphamia cephalotes*	Wood's siphon fish	24
Arripidae	*Arripis georgianus*	Australian herring	135
Atherinidae	*Atherinasoma microstoma*	small mouthed hardy head	123
	Atherinasoma presberytoides	silver fish	234
	Atherinason esox	pike headed hardyhead	2
Balistidae	*Acanthaluteres spilomelanurus*	bridled leatherjacket	13
	Meuschenia freycineti	six spined leatherjacket	2345
	Scobinichthys granulatus	rough leatherjacket	1345
Carangidae	*Caranx georgianus*	trevally *	12345
Clinidae	*Cristiceps australis*	crested weedfish	12345
	Clinus perspicillatus	common weedfish	2
Clupeidae	*Spratelloides robustus*	blue sprat	234
Dinolestidae	*Dinolostes lewini*	long finned pike*	14
Enoplasidae	*Enoplosus armatus*	oldwife	235
Exocoetidae	*Hyporamphus melanochir*	garfish	235
Galaxiidae	*Galaxias maculatus*	galaxid	23
Girellidae	*Girella tricuspidata*	luderick	234
Gobiesocidae	unidentified sp.	clingfish	

FAMILY	SCIENTIFIC NAME	COMMON NAME	OTHER AREAS
Gobiidae	*Flavonigobius lateralis*	long finned goby	2345
	Arenigobius frenatus	goby	12345
	Nesogobius sp. *A*	goby **	
	Nesogobius sp. *B*	goby**	
	Nesogobius sp. *C*	goby	
	Tasmanogobius sp. nova	goby**	23
	Pseudogobius olorum	goby	234
Mugilidae	*Aldrichetta forsteri*	yellow-eye mullet	12345
	Mugil cephalus	sea mullet	45
Neoodacidae	*Haletta semifasciata*	weed whiting	23
Platycephalidae	*Neoplatycephalus* sp.	flathead	
Pomatomidae	*Pomatomus saltator*	tailor*	345
Scorpaenidae	*Gymnapistes marmoratus*	South Australian cobbler	12345
Sillaginidae	*Sillaginoides punctatus*	King George Whiting	1235
Soleidae	*Rhombosolea tapirina*	green back flounder	123
Sparidae	*Acanthopagrus butcheri*	black bream	23
Syngnathidae	*Stigmatophora argus*	spotted pipefish	234
	Stigmatophora nigra	wide bodied pipefish	234
	Syngnathus phillipi	Port Phillip pipefish	23
	Urocampus carcinirostris	hairy pipefish	234
	Hippocampus whitei	White's seahorse	234
Tetraodontidae	*Torquigener glaber*	smooth toadfish	3
	Contusus richeii	prickly toadfish	1235
	Allomycterus pilatus	spiky toadfish	1
Rhinobatidae	*Trygonorhina fasciata*	fiddler ray	1245
	Myliobatis australis	eagle ray	

* data from fishermen's records
** reference specimens held by Mr. D. Hoese, Fish Division, Australian Museum, Sydney.

NOTE
Species listed for Swan Bay but not for other locations may in fact be there, they may not have been recorded during the relevant study, or they may not have been identified.



Spotted pipefish. *Stigmatophora argus.*
Male with broad pouch with eggs under tail.

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Rosalind Jessop, 14 Myrtle Grove, Altona 3018.

G.F.N.C. Otways Regeneration Survey — 2nd Progress Report

Valda Dedman

Through spring and summer the G.F.N.C. survey areas at Moggs Creek have continued their recovery. Nearly all the larger eucalypts are densely clothed with new growth along trunks and branches, and often have shoots from the base as well. There is now quite dense vegetation near the creek, much of it bracken and weed growth. Many native plants are present, however, such as Hop Goodenia, and Austral Stork's-bill whose mauve and white flowers provided an attractive display in late January.

The most obvious change as summer progressed was the increasing density of grass cover on the hillsides. The grasses seeded profusely; whether they will take over, either in the long or short term, at the expense of native plants remains to be seen. Some of the first year indigenous plants, notably Sweet Bursaria and Winged Spyridium, also flowered and set many seeds. There has also been an amazing germination rate among the acacias and eucalypts. Some patches of seedlings are 30cm high, and so dense that natural thinning must soon occur. Good rains in spring and summer have helped growth; perhaps autumn's dryness will cause a change.

Weeds and grasses have not invaded the heathland to the same extent. In this area growth is slower and more even. The orchids in late winter and spring flowered spectacularly. The Scented Leek Orchid, usually a single specimen, was often found in clumps, one with thirty flowering heads together. Four species of Sundew were found flowering on the heathland: the Tall, Scented, Scarlet and Climbing.

The fresh growth on the trees has proved inviting to chewing insects, which prefer the high concentrations of nitrogen found in young foliage. On 21 January many writhing masses of sawfly larvae were seen on juvenile growth on the trees near the creek; on 4 February it was noticed that some of this had been stripped bare. Fallen leaves with chewed edges, and covered with a very sticky concentrated eucalyptus substance, were common along the track. On other trees, leaves had been fastened to form a retreat for a caterpillar.

Various butterflies have been seen during recent months. These included the Painted Lady, Caper White, Cabbage White, Common Brown, Australian Admiral, and Meadow Argus. Ground beetles, centipedes, and especially ants are all common under bark and rocks.

Insects provide food for birds, and we were pleased to note an increase in both total numbers and individual species of birds during spring. Altogether, since the fires, 44 different bird species have been noted, although some, such as the Crescent Honeyeater and the White-throated Treecreeper, have been recorded only once to date. Pied Currawongs, Sulphur-crested Cockatoos and Red Wattlebirds have frequently been noted. On one day at the end of October, 18 different species were recorded, the highest for one day so far. This coincided with greater bird activity and song. Species seen and heard then included Rufous Bristlebird, King Parrot, Olive-backed Oriole, and a pair of Sacred Kingfishers that were investigating a nest hole at Tallawalla Guide Camp. We have not yet found any birds actually nesting, but other evidence would indicate that the breeding season has been a good one. Recently there has been an upsurge in the numbers of Crimson Rosellas, particularly juveniles. Parties of Superb Fairy-wrens have been seen among the bracken, and these have included several young birds. A pair of Satin Flycatchers was observed feeding a young Shining Bronze-Cuckoo.

At the end of September, when the grasstrees were flowering and attracting insects and honeyeaters, four different raptors were seen over the heathlands: Australian Kestrel, Wedge-tailed Eagle, Brown Falcon, and Peregrine Falcon. A Peregrine was sighted again in January.

We have seen one Redbacked Wallaby and the tracks of others, and a number of Echidna diggings. Mammal traps have been put out regularly to see if smaller species are present. Up to November 1983 we caught only introduced Black Rats, each time near the creek. Then at the beginning of February we put out 50 traps – 25 near the creek, 10 on the heathland and 15 in the woodland/teatree swamp below the heathland. We caught one House Mouse near the creek and two in the woodland.

According to the *Australian Museum Complete Book of Australian Mammals* (p.455):

> The House Mouse becomes abundant and ubiquitous about 18 months after a fire, at a time when native species of rodent have become rare. The outbreak can last up to 3-4 years, the House Mouse disappearing as populations of native rodents begin increasing again.

Will our observations bear this out? Does the increase in numbers reflect an abundant food supply of seeds, combined with the opportunistic breeding habits of the House Mouse? Few species of native mice would occur naturally in the area, although it is possible that the New Holland Mouse existed in the heathland. Other small mammals, such as Antechinus, breed only once a year and are carnivorous, living on insects such as beetles and cockroaches. When will they reappear?

These and other questions are what we hope to answer through our survey. We would appreciate your observations, however ordinary they may seem. All help to build up a total picture.

All members and other interested persons are welcome to take part in the survey which is held on the last weekend of every month. We meet at Moggs Creek Picnic Area at 2pm on the Saturday and 10am on the Sunday.

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Valda Dedman, 69 North Valley Rd., Highton 3216.

Suburban Birds in Highton, Geelong: a 4 year survey

Ray Baverstock

Introduction:

Highton is one of the older districts around Geelong, having been settled as a farming community well over 100 years ago.

In the past thirty years it has become a popular residential area. When we first moved here almost twenty-five years ago the area was still semi-rural but was rapidly being subdivided. Very little native vegetation remained, most of it having been cleared many years before for dairying, poultry raising and general farming. The largest pocket of uncleared land was in the "Shoubra" estate at the corner of Roslyn Road and South Valley Road. Even this contained a mixture of large exotic and native trees and was soon to be subdivided. Our own block of land had been completely cleared except for a few fruit trees planted by the previous owner.

In those days Helena Street was still unmade and Bellevue Avenue was only a rough track which extended as far south as Helena Street. Beyond that was a farm containing a small dam. A small creek ran alongside Bellevue Avenue, with a further creek running into it from the west. Both creeks were later converted into barrel drains.

Our home is situated on the hill south of Roslyn Road, facing north, and in the early days we had uninterrupted views of parts of north Highton, Newtown, Belmont and could even see the spire on St. Mary's Church in the city.

Since then the trees planted in the neighbouring gardens have blocked out most of the view. Fortunately the majority of plantings have been native trees and shrubs, and what view has been lost has been compensated for by the increase in both the number and variety of birds which visit us.

Our own garden contains a mixture of exotic and native trees and shrubs. More native shrubs are being planted with the hope that more birds, particularly honeyeaters, will come to the garden. Apart from the provision of a couple of containers of water no other effort has been made to attract birds to the garden.

Like most suburban areas we are troubled by feral cats (any cat more than 10 centimetres from its owner's doorstep.) One particular feline which was causing havoc amongst the local bird population has had a special bell placed on its collar with spectacular results. (It no longer catches many birds but the sound of the bell drives my son Grant's dog mad.)

Over the years there have been noticeable changes in the bird population, most of which have been caused by changes in the environment. For example, following subdivision of the "Shoubra" estate, the Kookaburras almost disappeared. The White-faced Herons which used to walk up the middle of the road from the creek are now only rarely seen flying overhead. Other birds which are not seen as often include the

Southern Boobook, European Goldfinch, White-plumed Honeyeater, Eastern Spinebill and Pallid Cuckoo.

On the other hand many species have become more common, possibly because trees and shrubs planted twenty to thirty years ago are now reaching some form of maturity. These birds include the Gang-Gang Cockatoo, Spotted Pardalote, Striated Pardalote, Rainbow Lorikeet, European Greenfinch and Pied Currawong. There has also been an upsurge in the numbers of Cattle Egrets, Galahs and Little Ravens.

One of the most interesting examples has been the Pied Currawong. We did not see this bird in our area until 1979 when a pair were seen on several occasions. The numbers and frequency of visits gradually built up until flocks of up to eleven were seen or heard several times a week. However during the last few weeks of 1983 they seem to have disappeared. Perhaps they have returned to the bush for the breeding season.

Again there are some notable absentees.

The Common Mynahs which are often observed at Balyang Sanctuary to the north-east, and Waurn Ponds to the south-west have (fortunately) not been observed here, nor have the White-winged Triller and Eastern Shrike-tit which have been reported from other parts of Highton. Very few water birds have been recorded as we are well away from the sea, and the Barwon River and Balyang Sanctuary are at least a kilometre away.

From early 1980 until the time of writing, December 1983, I have kept a daily record of the different species of birds heard or seen in and around our garden. The majority of observations early in the morning have been based on the various bird calls heard (one has to be careful because the local starlings are good mimics). Any strange call heard is followed by a grab for the binoculars and a mad dash outside to see the new bird. Fortunately, in most cases the bird has been sighted, if not that day, then within a day or two.

Most newcomers stay around for a day or two, presumably until the available food supply is exhausted.

Apart from weekends, when more time is available for observation, one can usually expect to record at least a dozen different species (including introduced species) each day. The highest number of species recorded in and around the garden in a single day is twenty seven, on 18 April 1982.

Comparatively few species have nested in our garden, and those that did were mainly introduced. Nesting species include Silvereye, European Goldfinch, Spotted Turtledove, Blackbird, House Sparrow, Common Starling, European Greenfinch, and Australian Magpie. The Magpies nest in the row of pine trees running through the rear of the gardens behind ours.

It should be pointed out that during 1983 there have been someunusual sightings of birds both here and in the Geelong area generally, possibly as a result of the prolonged drought and the Ash Wednesday bushfires which destroyed so much habitat in the Eastern Otways and other areas.

The following list of 75 species is made up from the daily records, but also includes a number of old records and some observations by my son Grant and Lawrie Conole.

Australian Pelican *Pelecanus conspicillatus*

As we live just over a kilometre away from Balyang Sanctuary where a colony has established itself, it is somewhat surprising that we do not see these birds more often. They have been seen on only a few occasions, notably in September 1981 when 4 were seen soaring high overhead.

Great Cormorant *Phalacrocorax carbo*

Two sightings, in November 1980 and March 1981. On each occasion the bird flew low overhead late in the afternoon heading towards the Balyang Sanctuary.

White-faced Heron *Ardea novaehollandiae*

In earlier years, on several occasions we saw a White-faced Heron march majestically up the middle of our then unmade street, much to the delight of our young daughter. This was in the days before the creek which flowed alongside Bellevue Avenue was converted into a barrel drain. Since then this species has only been seen flying overhead on a couple of occasions, the last sighting being in July 1982.

Cattle Egret *Ardeola ibis*

These birds have become much more common in the past few years, during the cooler months. In 1980 our house was directly in their flight path as they left the Balyang Sanctuary and headed in a southerly direction. Odd birds would be seen flying over at first light and then the main flocks would appear. One morning over 200 birds flew over in a period of fifteen minutes. Other large sightings were 30+ in June, 160+ in August and 60+ in September. I have never heard them call but one morning as they flew overhead very low, heading into a strong wind, their wing beats could be clearly heard.
4 sighted flying over on 19 August 1983.

Great Egret *Egretta Alba*

Recorded on a few occasions flying overhead. In September 1982 two birds were seen flying towards the northwest late in the afternoon.

White Ibis *Threskiornis molucca*

Recorded on a few occasions, mainly from October to February, flying overhead towards their feeding grounds. A flock of seven birds was sighted flying over on 24 September 1983 towards the east.

Straw-necked Ibis *Threskiornis spinicollis*

Recorded on several occasions, mainly from August to December. On occasions more than 40 birds have been seen flying over. Last large sightings 30+ birds flying overhead on 24 September 1983 and 40+ on 25 September 1983.

Black Swan *Cygnus atratus*

In the early days, we often used to hear the swans calling as they flew over at night, but then we did not hear them for many years, although we knew they were present at Balyang Sanctuary. Then on 21 May 1983 on a clear moonlight night two flights of swans were heard going over at 10.30 p.m. The wing beats of the second flight were clearly audible. On 1 June 1983 4 swans were seen flying over as they left the Balyang Sanctuary during the day.

Black-shouldered Kite *Elanus notatus*

Although I have observed the bird on many occasions just west of Scenic Road at "Wandana Heights", I have recorded it at home only once, in November 1980. Another bird was seen flying over Porter Avenue on 16 August 1983.

Whistling Kite *Haliastur sphenurus*

One bird sighted overhead on the afternoon of 24 August 1980, and a pair on 6 December 1980.

Grey Goshawk *Accipiter novaehollandiae*

In early 1981 Grant and Lawrie saw a Grey Goshawk (white phase) near Deans Marsh and I accompanied them on several occasions whilst they were conducting a mammal survey at Lorne, hoping I would see this particular bird, but without success.

On 23 March 1981 whilst driving home for lunch, I saw a white bird circling overhead near Princes Bridge in Highton and realised it was a White Goshawk. A few weeks later on 13 April 1981 the Goshawk appeared over our home, but was driven away by a pair of magpies.

Wedge-tailed Eagle *Aquila audax*

One does not expect to see these birds in the suburbs but I have observed them on two occasions. The first occasion was some years ago when a pair was seen moving high up towards the west.

The second occasion was in February 1982 when a pair was seen from the back garden circling at a very high altitude just to the south of our home.

Australian Hobby *Falco longipennis*

Observed on many occasions from December to April. Two sightings stand out in my memory. On one occasion I was able to observe an

Australian Hobby for half an hour as it perched on our neighbours' T.V. antenna feeding on the sparrow it had caught.

Another time I was standing in the back yard, when a female bird flew swiftly over a few feet above my head, calling out loudly, and followed closely by the male bird. They performed a somersault at the end of their run and came charging back in the opposite direction. I presume that this was part of their courtship display.

Earlier this year a pair was seen on several occasions in the vicinity of the "Shoubra" Estate and could be heard calling to each other. One of their favourite perching spots was a dead eucalypt in South Valley Road.

Brown Falcon *Falco berigora*

Not common but occasionally seen flying overhead. Last sighted in June 1983.

Australian Kestrel *Falco cenchroides*

This bird used to be seen fairly freqently and on occasions tried to attack birds in the aviary. The only recent sighting was in August 1982.

Masked Lapwing *Vanellus miles*

Although occasionally seen, they are more often heard flying overhead at all hours of the night, emitting their characteristic call.

In 1983 there seems to have been a minor population explosion as on several occasions I have seen a flock of more than twenty birds on the open ground on both sides of the river just to the west of Princes Bridge.

Recorded in all months of the year but more frequently in April, May and June. Four birds flew over on 16 July 1983 during the afternoon.

Latham's Snipe *Gallinago hardwickii*

We have often flushed these birds at Point Henry and when fishing at Cressy and Ceres. Imagine Grant's surprise therefore when just on dusk about two years ago he saw one of these birds rocketing right down the middle of Helena St., a metre or so above the road.

The bird was probably heading towards the Belmont Common.

Silver Gull *Larus novaehollandiae*

Often seen flying over in all months of the year, sometimes in flocks of more than thirty. On 14 July 1980 a very noisy solitary bird flew over. This species seems to be becoming more common.

Feral Pigeon *Columba livia*

Although there are several flocks of homing pigeons in the area, pairs and single birds are often seen flying overhead at all times of the year.

Spotted Turtle-Dove *Streptopelia chinensis*

One of our resident birds. They nest in the Pittosporum trees in the nature strip. In 1982 one pair nested in the Bleeding Heart tree beside our front porch. The nest was a flimsy construction of thin sticks. One white egg was laid with both birds sharing the nesting duties. However they abandoned the nest after the second attack by one of our neighbours' cats. This year a pair was nesting near the top of a *Melaleuca armillaris* in the back garden but was driven off by the Wattlebirds which were nesting close by in the garden behind ours.

These birds are often seen sunning themselves on the roof tiles or in the driveway. Recently a flock of twelve was seen feeding on the nature strip. They are very fond of the seeds of the Bleeding Heart tree.

Yellow-tailed Black Cockatoo *Calyptorhynchus funereus*

A possible sighting in December 1982 was confirmed the next day when both Grant and I heard the bird fly over early in the morning. Its characteristic call which we had heard so often in the Otways was unmistakeable.

Gang-Gang Cockatoo *Callocephalon fimbriatum*

These birds had been observed on odd occasions for some years, but it was not until 1980 that they appeared in large numbers. From March to May 1980 flocks of up to sixty were seen. They were amongst the first birds heard in the morning and amongst the last at dusk so presumably were roosting in the area. The autumn of 1980 was unusually dry so it was presumed that they had come in from the Otways in search of food and water. They have since been recorded in most months with the peak periods in 1982 being March to May and August and September.

During 1983 they have not been so prominent although flocks of up to twenty were seen towards the end of June, and smaller numbers in August and September. They have been observed feeding on various Eucalypts, and their food includes the nuts of the Queensland Box *Tristania conferta* in the nature strip.

Galah *Cacatua roseicapilla*

These beautiful birds have become more common during the past few years, usually seen in pairs, although up to twelve birds have been seen flying over. Seen throughout the year, but more common in the warmer months.

Sulphur-crested Cockatoo *Cacatua galerita*

I believe the earliest records of these birds in our area were of aviary escapees. However from January to April 1983 a flock of up to eight birds was seen on several occasions. In August 1983 a small flock was observed several times.

Rainbow Lorikeet *Trichoglossus haematodus*

These colourful birds have become much more common in recent years, being recorded in every month. Occasionally they are seen feeding in the Eucalypts and Loquat tree next door but are more often seen flying rapidly overhead. On one occasion a loud squawking in the sky revealed a pair being chased by an unidentified raptor. On this occasion they were lucky and somehow managed to escape their pursuer. Another lone bird was seen flying over on two occasions on 16 July 1982 again calling loudly.

Musk Lorikeet *Glossopsitta concinna*

Observed in May 1982 feeding in the Eucalypts next door. Seen on several occasions in January and February 1983.

Purple-crowned Lorikeet *Glossopsitta porphyrocephala*

Seen in March 1982 and on numerous occasions in the period from January to April 1983. They were particularly common in February and were heard flying over several times a day.

Little Lorikeet *Glossopsitta pusilla*

Although I suspect that these birds have been around for a number of years, it was not until September 1981 when six were seen that I was able to identify them positively.

In 1982 they were observed on many occasions from March until May. From December 1982 to April 1983 the air was alive with lorikeets of all descriptions. On some occasions they seemed to be flying over all day, occasionally alighting on the gums to feed for a short while, and then flying off again. I would say that they are definitely becoming more common.

Budgerygah *Melopsittacus undulatus*

On at least two occasions pairs of green birds have been seen flying through the garden. It is not known whether these were wild birds or aviary escapees, but they were probably the latter.

Crimson Rosella *Platycercus elegans*

An occasional visitor usually recorded from April to October but sometimes seen or heard at other times. In 1983 there were numerous sightings from June to September.

Pallid Cuckoo *Cuculus pallidus*

In recent years these birds have been very rare in our area. In 1981 they were recorded on a few occasions from September to November. However in August and September 1982 they were heard calling more frequently than for many years. In fact 1982 seems to have been a vintage year for many species of cuckoos locally. The Pallid Cuckoo has been heard at home on only one or two occasions in 1983.

Fan-tailed Cuckoo *Cuculus pyrrhophanus*

Heard calling on a number of occasions in September 1982, but not heard at home in 1983.

Horsfield's Bronze-Cuckoo *Chrysococcyx basalis*

I recorded this bird in our garden in October 1980 and again on many occasions in October 1982. Not heard at home in 1983.

Shining Bronze-Cuckoo *Chrysococcyx lucidus*

Recorded on several occasions since 1980, usually from September to December but as late as February. They were particularly conspicuous for a short period in 1982.

Southern Boobook *Ninox novaeseelandiae*

The call of the Boobook at night is my favorite bush sound. Many years ago we used to see these birds hawking for moths under the street lights and on several occasions they were seen perched on top of the rotary clothes hoist at night. It was also a delight to lie in bed and hear them calling. Then as the area to the south became subdivided they gradually disappeared, and the last one was heard calling in the distance in July 1979. We thought they had gone forever until, at 6.10 a.m. on Sunday 5 June 1983, I heard one calling close by. I was so excited I woke Lena up so that she could hear it. It kept calling for about ten minutes. Just over a month later, at 6.10 a.m. on 10 July 1983, we again heard a Boobook calling in the distance, but this time for only about five minutes. Another bird was heard calling by Grant and Lawrie at 10.00 p.m. on 25 October 1983.

Tawny Frogmouth *Podargus strigoides*

On 1 January 1983 Grant was awakened at 2.00 a.m. by the barking of the dog. On investigating he found that a Tawny Frogmouth was in one of the trees in the backyard, and he saw it flying away. A fortnight later I heard the bird calling from our neighbour's tree, and although I tried to see it with the aid of a spotlight I was unsuccessful, and the bird apparently flew off undetected.

White-throated Needletail *Hirundapus caudacutus*

Occasionally seen in summer. In suitable weather I have been able to pick them up by scanning the skies with binoculars, although they were not visible to the naked eye. On one occasion twelve birds were seen low down heading from east to west.

Fork-tailed Swift *Apus pacificus*

Recorded in March 1982 just ahead of a weather front.

Laughing Kookaburra *Dacelo novaeguineae*

When we first moved to Highton we would wake up almost every morning to the sound of the Kookaburras laughing. They would often visit our garden or perch on the neighbours' TV antenna and delight us with their chorus.

Then as the "Shoubra" estate was gradually subdivided they were heard less and less, until at one stage we did not see or hear one for almost eighteen months. They staged a minor comeback in 1982, but in 1983 they were heard on only a few occasions.

Welcome Swallow *Hirundo neoxena*

Irregular visitors recorded in all months but mainly during the warmer weather. When they are present they are constantly on the move weaving back and forth, usually in pairs, in search of insects.

Black-faced Cuckoo-Shrike *Coracina novaehollandiae*

An occasional visitor seen usually in pairs from September to May. Its call and undulating flight are quite distinctive and on several occasions I have been able to observe it perched in nearby trees. A former boss of Grant's always referred to these birds as "Rain Birds", asserting that they came just before rain.

On several occasions this has been proved to be true in our area, but I cannot say that it has happened on every occasion.

Blackbird *Turdus merula*

A resident bird, seen every day scratching amongst the leaf litter in search of food. Their skittering alarm cries are usually the first to be heard in the morning. During the recent water restrictions a dilapidated bird which I christened "Roughnut" would follow me around as I hosed the garden, feeding on the insects disturbed by the water. During the last breeding season a pair nested in a holly tree in the front garden. Although many of them fall prey to the local cats they are becoming more common. At times their song is a delight to hear, sometimes rivalling that of the Song Thrush.

Song Thrush *Turdus philomelos*

Usually observed from June to October. In 1981 one particular bird could be heard at dawn each morning and would still be singing beautifully when I left for work two hours later. Only heard periodically since then. In 1983 another bird was heard on most mornings but its song was not as good as that of the bird present in 1981.

Golden Whistler *Pachycephala pectoralis*

Several years ago a pair of grey-plumaged birds visited our garden for the first time. Since then we have had the pleasure of both hearing the glorious song of this bird and observing the male in his golden plumage.

Most visits have been recorded from March to October. On 17 April 1983 a female and two males in full golden plumage were seen in the front garden.

Rufous Whistler *Pachycephala rufiventris*

First observed in the garden on 22 March 1981 and on several occasions until mid-June. Its distinctive call was also heard on several occasions in the vicinity of Barrabool Rd., Highton. Since then only one other observation, in November 1982.

Grey Shrike-thrush *Colluricincla harmonica*

In 1980 we spent the Easter holidays at Halls Gap and were thrilled each morning by a Grey Shrike-thrush which sang beautifully in a tree just behind the caravan we were staying in.

Later in the year we recorded the species in our garden for the first time, although its song never approached the standard of the Halls Gap bird. It was heard on several occasions over a period of a few days. Since then irregular visits have been recorded from April to September each year.

Restless Flycatcher *Myiagra inquieta*

The familiar scissors grinder call was first heard in our garden, and the bird seen, in March 1980; and a bird was again present for a period of three days in December 1982.

Grey Fantail *Rhipidura fuliginosa*

These confiding little birds have become much more common in recent years being recorded from February to November. Up to six birds have been seen in the garden at the one time. They will often approach to within a metre when one is working in the garden. At other times they are seen performing amazing aerobatics in their hunt for insects and it is easy to see where they acquired their nickname of "Cranky-Fan". Not seen very much in 1983.

Willie Wagtail *Rhipidura leucophrys*

First recorded in our garden in August 1981. Since then it has visited us on several occasions. Spends a lot of time on the ground giving its characteristic wag of the tail. When it is present it spends most of its time on the nature strip.

Brown Thornbill *Acanthiza pusilla*

First recorded in our garden in March 1980, these plump little birds are quite often seen working their way methodically through the shrubs in the garden and nature-strip. The most recent sighting was on 25 October 1983.

Yellow-rumped Thornbill *Acanthiza chrysorrhoa*

Recorded in late August 1982 when a pair were seen gathering nesting material, and also in September 1982.

Yellow Thornbill *Acanthiza nana*

Two sightings of half a dozen birds in February 1982. For several days from 22 October 1983 a party of a dozen birds was very active in the street trees and shrubs in the front garden and could be heard most of the day. They seemed to do most of their feeding in the Pittosporum trees. Also seen on many occasions in December 1983.

Striated Thornbill *Acanthiza lineata*

Seen on a couple of days in April 1981 working through the shrubs in the garden accompanied by some Brown Thornbills. Although the Brown Thornbills have become fairly regular visitors, the Striated Thornbill has not been observed since then.

Red Wattlebird *Anthochaera carunculata*

One of our resident species, it is heard and seen every day in the garden. On one occasion a flock of about twelve birds, including juveniles, was seen for most of the afternoon flying around from tree to tree in roughly a triangular circuit, seemingly just for the fun of it. Perhaps it was part of the training for the juveniles.

These birds resent the intrusion of larger birds and attempt to drive them away. They even stand up to the Grey Butcherbirds and on one occasion I saw one stand his ground as a Butcherbird moved further down the branch of the Pine tree they were both standing on. It was the Butcherbird who flew away first.

The Wattlebirds love feeding on the Grevilleas, and orange-capped birds are often seen when the Silky Oak *Grevillea robusta* is in bloom. Last summer I heard an unusual sound and looked up to see a large Cicada flying over. A Red Wattlebird followed it and after several unsuccessful attempts eventually caught the Cicada which no doubt provided a tasty meal. They also feed on the Hover Flies which swarm around the Weeping Cyprus and *Thuya occidentalis* when they are in bloom in September.

Yellow-faced Honeyeater *Lichenostomus chrysops*

This bird has become more common in recent years although it has only been recorded in our garden from May to October. Favourite shrubs include the Grevilleas and Hibiscus. It was very prominent in July and August 1983.

White-plumed Honeyeater *Lichenostomus penicillatus*

Formerly one of the most common honeyeaters in our garden, in the past few years this bird has become rather rare locally, most sightings being from March to May. I am pleased to say that this year 1983 they have become more plentiful and I have recorded them in every month except February and September.

Several years ago it was a common sight to see the White-plumed Honeyeaters, New Holland Honeyeaters and Eastern Spinebills feeding simultaneously in the same Grevillea bush. Let us hope it happens again.

White-naped Honeyeater *Melithreptus lunatus*

Rather rare in the area and observed on only a few occasions some years ago. It has usually been seen feeding high up in the canopy of the Eucalypts.

New Holland Honeyeater *Phylidonyrus novaehollandiae*

One of the more common birds in the garden being recorded in all months of the year. The peak months have been February and October when flocks of up to a dozen birds have been seen. They are particularly fond of the nectar from the Grevilleas and Hibiscus flowers.One of their favourite perching spots is the powerline leading to the house, from which they launch themselves into the air in search of insects. They also like to perch at the top of the tallest deciduous trees from which they swoop down in to the Grevilleas. When a flock is on the move the noise they create is almost deafening. During the Winter months they are one of the first birds to be heard in the morning.

Eastern Spinebill *Acanthorynchus tenuirostris*

Often seen feeding like a humming bird at the Grevilleas, but not as frequent a visitor as it used to be in our garden. Recorded over the years in all months except January.

Very few sightings in 1983.

Spotted Pardalote *Pardalotus punctatus*

These chunky little birds have become more plentiful in the surrounding Eucalypts during recent years, their distinctive call being particularly noticeable in late 1982. They are more often heard than seen, and have been observed in all months of the year.

Striated Pardalote *Pardalotus striatus*

Not as common as the Spotted Pardalote, and usually observed during Autumn and Winter, the latest sighting was of a pair on 19 June 1983. Has been heard on several occasions since then.

Silvereye *Zosterops lateralis*

One of the most common birds seen in the garden, they are particularly fond of the seed pods of the Bleeding Heart tree. On several occasions they have nested in this tree, a Hibiscus and a Liquidamber in the front garden. Some of these attempts have been unsuccessful as the nests have been destroyed by larger birds. I feel that the constant plaintive twittering of the bird on the nest would betray its presence to any predator. Has a very sweet, soft song at times.

In some years during May, large flocks of the Tasmanian birds have been observed travelling through the garden heading in a general north-easterly direction.

European Goldfinch *Carduelis carduelis*

Fairly common from August to March and occasional in other months. On several occasions years ago they nested high up in a peach tree in the garden. The nest was always neatly constructed and most broods were raised successfully. I do not think the Goldfinch is as common in our area as it used to be, possibly because there are few vacant blocks of land on which thistles, which are one of their favourite foods, can grow.

European Greenfinch *Carduelis chloris*

These birds have become common in the past few years during the warmer months of October to April. They can be heard calling all day from the pines behind our home, so much so that I believe they nest there. On hot days I have observed them with beaks open and wings outspread presumably trying to cool off. I do not know what they feed on locally but have observed them feeding on the seeds of "Mustard Grass" at North Geelong as late in the year as May.

Recently I have been able to observe these birds in the top of the Liquidamber in the front garden.

House Sparrow *Passer domesticus*

Very common, recorded daily and nests in the roof of the porch. I always thought of them as seed eaters but have seen them eating insects on the rose bushes. Recently we put the remains of a leg of lamb out in the backyard for the dog, a short time later a party of a dozen sparrows was seen fighting furiously over the meat left on the bone. Recently one was seen flying over with a large cicada in its beak. The cicada was still buzzing as it was carried off.

This year we have had to remove some of the pot plants from the front porch as the sparrows were stripping the feathery foliage for nesting material. Other material used included Melaleuca and Callistemon foliage.

Tree Sparrow *Passer montanus*

Occasional visitors to the garden, not as common as the House Sparrow. In September 1983 Lawrie Conole saw some Tree Sparrows fighting furiously in our driveway whilst some House Sparrows sat placidly watching them.

Zebra Finch *Poephila guttata*

Grant used to keep Zebra Finches in an aviary along with Budgerigars, King Quail and some Doves. However he sold the birds and removed the aviary a few years ago. Several years ago we saw a flock of Zebra Finches feeding on the Belmont Common Golf Course on a number of occasions.

We have seen Zebra Finches flying through our garden and in November 1981 a juvenile bird was also seen in the garden. We presumed the birds in the garden were aviary escapes.

Common Starling *Sturnus vulgaris*

One of the most common birds in the garden, being heard and seen at all times of the day. They have nested in the ceiling of the house. Recently Grant removed one of the nests, composed of long grass stems. The material completely filled a large plastic garbage bag and had apparently been built up over a number of years.

They are extremely good mimics, imitating the sounds of several other species.

Olive-backed Oriole *Oriolus sagittatus*

At 6.40 a.m. on 25 September 1983 Grant woke me up to say he thought he could hear an Oriole calling in the backyard. As we investigated there was no mistaking the call. By the time I got my binoculars the bird had perched in a large tree further down the hill where it could be seen silhouetted against the sky. It eventually flew off into Belmont.

On 25 October 1983 an Oriole was heard calling in the distance. It eventually came closer, and could be heard calling quite nearby just to the south-east. It eventually flew off in a westerly direction. It may have been the same bird going on its return journey.

These birds seem to have been much more common in 1983, as Grant has heard them calling several times in Eastern Park, and I heard one calling at Anglesea near the south-western corner of the Golf Course.

Australian Magpie-lark *Grallina cyanoleuca*

Known to us as Mudlarks, these immaculate birds, although always in the vicinity, seem to move around more than the Magpies which pay daily visits. They will appear for a few days at a time and then move away to be seen a few streets away. They are seen spasmodically throughout the year and seem to be becoming more common.

White-browed Woodswallow *Artamus superciliosus*

Occasionally seen overhead. In 1981 a large flock was seen flying over.

Grey Butcherbird *Cracticus torquatus*

Although common around Highton Cemetery for many years, it is only in recent years that these birds have appeared regularly in our area. The first time they were seen one was perched in a pine tree near the fenceline, and its mate in a tall Eucalypt next door. As one would commence to sing its mate would complete the song, a beautiful duet. At other times their song is rather harsh. On another occasion three butcherbirds perched on our neighbours' TV antenna, affording us a perfect view.

Observed in all months of the year. They were prominent in August 1983.

Australian Magpie *Gymnorhina tibicen*

A resident species. These birds have nested in the pine trees behind our home almost every year since we moved in. At first our children and their friends were often "swooped" by the parent birds, but after the first year or two the birds apparently realised that the children presented no threat to them and we have had no trouble since. The young birds are quite tame at times and can be easily approached. The adult birds can be heard warbling away at all times of the day, and also on moonlit nights at all hours. The Magpies are often seen driving larger birds from the area.

Pied Currawong *Strepera graculina*

First seen locally in August 1979, they have now been recorded on many occasions, particularly in 1980 when they were observed each month from May to December.

The first sightings in 1979 and 1980 were mainly single birds or pairs, but during 1983, 4 birds were seen on most occasions which were becoming more frequent.

On 2 July 1983, 6 Currawongs alighted in the *Eucalyptus nicholii* in the front garden. Eventually they were driven away by 5 magpies. A flock of eleven Pied Currawongs was sighted on 10 July 1983. They were seen almost every day up until the end of August when the visits suddenly ceased. Perhaps the birds returned to the bush for the breeding season.

Little Raven *Corvus mellori*

These birds moved into the district in large numbers about four years ago and are now daily visitors. They seem out of place in a suburban environment and it is hard to believe that there would be enough food available for them; until one realises that in one part or another of the area garbage is placed out every day. I have seen them feeding on this type of material.

They probably now breed locally as I have observed them carrying nesting material on at least one or two occasions.

Acknowledgements

I wish to thank Trevor Pescott and the members of the bird study group of the Geelong Field Naturalists' Club and Margaret Cameron who suggested that our observations should be written down for future reference.

My thanks to Grant Baverstock and Lawrie Conole for typing the manuscript and helpful criticism of the text, and without whose encouragement this article would not have been written.

Months when species have been recorded

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Australian Pelican									–			–
Great Cormorant			–								–	
White-faced Heron							–					
Cattle Egret				–	–	–	–	–	–	–	–	
Great Egret					–				–			
White Ibis		–								–		–
Straw-necked Ibis								–	–	–	–	–
Black Swan					–	–						–
Black-shouldered Kite											–	
Whistling Kite								–				–
Grey Goshawk				–								
Wedge-tailed Eagle		–										
Australian Hobby	–	–	–	–					–			–
Brown Falcon	–					–						–
Australian Kestrel								–				
Masked Lapwing	–	–	–	–	–	–	–	–	–	–	–	–
Latham's Snipe											–	
Silver Gull	–	–	–	–	–	–	–	–	–	–	–	–
Feral Pigeon	–	–	–	–	–	–	–	–	–	–	–	–
Spotted Turtle-Dove	–	–	–	–	–	–	–	–	–	–	–	–
Yellow-tailed Black Cockatoo												–
Gang-Gang Cockatoo	–	–	–	–	–	–	–	–	–	–	–	–
Galah	–	–	–	–	–	–	–	–	–	–	–	–
Sulphur-crested Cockatoo	–	–	–	–				–	–	–		
Rainbow Lorikeet	–	–	–	–	–	–	–	–	–	–	–	–
Musk Lorikeet	–	–			–							
Purple-crowned Lorikeet	–	–	–	–								
Little Lorikeet	–	–	–	–	–				–			–
Budgerygah										–	–	
Crimson Rosella	–		–	–	–	–	–	–	–	–	–	
Pallid Cuckoo								–	–	–	–	
Fan-tailed Cuckoo									–			
Horsfield's Bronze-Cuckoo										–		
Shining Bronze Cuckoo	–	–							–	–	–	–
Southern Boobook						–	–			–		
Tawny Frogmouth	–											
White-throated Needletail	–	–	–									
Fork-tailed Swift			–									

Months when species have been recorded

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Laughing Kookaburra	–	–	–	–	–	–	–	–	–	–	–	–
Welcome Swallow	–	–	–	–	–	–	–	–	–	–	–	–
Black-faced Cuckoo-shrike	–		–	–	–	–			–	–	–	–
Blackbird	–	–	–	–	–	–	–	–	–	–	–	–
Song Thrush	–		–		–	–	–	–	–	–		
Golden Whistler			–	–	–	–	–	–	–	–		
Rufous Whistler			–	–	–	–	–				–	–
Grey Shrike Thrush				–	–	–	–	–	–			
Restless Flycatcher			–									–
Grey Fantail	–	–	–	–	–	–	–	–	–	–	–	
Willie Wagtail	–		–		–			–		–		
Brown Thornbill	–	–	–	–	–	–	–	–		–	–	–
Yellow Rumped Thornbill								–	–			
Yellow Thornbill		–								–		
Striated Thornbill				–								
Red Wattlebird	–	–	–	–	–	–	–	–	–	–	–	–
Yellow-faced Honeyeater				–	–	–	–	–	–	–		
White-plumed Honeyeater	–	–	–	–	–			–	–		–	–
White-naped Honeyeater	–											
New Holland Honeyeater	–	–	–	–	–	–	–	–	–	–	–	–
Eastern Spinebill		–	–	–	–	–	–	–	–	–	–	–
Spotted Pardalote	–	–	–	–	–	–	–	–	–	–	–	–
Striated Pardalote	–	–	–	–	–	–	–	–		–		
Silvereye	–	–	–	–	–	–	–	–	–	–	–	–
European Goldfinch	–	–	–	–	–	–	–	–	–	–	–	–
European Greenfinch	–	–	–	–				–	–	–	–	–
House Sparrow	–	–	–	–	–	–	–	–	–	–	–	–
Tree Sparrow	–	–	–						–			
Zebra Finch										–	–	
Common Starling	–	–	–	–	–	–	–	–	–	–	–	–
Olive-backed Oriole									–	–		
Australian Magpie-lark	–	–	–	–	–	–	–	–	–	–	–	–
White-browed Woodswallow				–								
Grey Butcherbird	–	–	–	–	–	–	–	–	–	–	–	–
Australian Magpie	–	–	–	–	–	–	–	–	–	–	–	–
Pied Currawong	–	–	–	–	–	–	–	–	–	–	–	–
Little Raven	–	–	–	–	–	–	–	–	–	–	–	–

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A Record of the Noisy Friarbird for the Anakie Gorge, Brisbane Ranges National Park, Victoria.

Lawrie Conole and Grant Baverstock

On Saturday 11 February, 1984, the authors observed two Noisy Friarbirds *Philemon corniculatus* in the Stony Creek Picnic Area, Upper Anakie Gorge, Brisbane Ranges National Park, Victoria.

The prevailing weather at the time of the sighting (17:00 hrs) was hot–35°C, no wind and little cloud.

A call described by Pizzey (1980) as a mellow "chew, chewip" often repeated, at first drew the attention of one of us (L.E.C.) and two birds were subsequently identified as Noisy Friarbirds as they interacted with each other, Yellow-tufted Honeyeaters *Lichenostomus melanops*, Yellow-faced Honeyeaters *L. chrysops* and White-naped Honeyeaters *Melithreptus lunatus*.

This record constitutes a minor extension of the modern range of the Noisy Friarbird, described for Victoria by Pizzey (1980) as "In Vic., regular summer migrant to ne. high country, and e. Gippsland w. to Bairnsdale, vagrant further w. to Port Phillip; in c. Vic., regularly s. to about Mansfield–Nagambie – Bendigo, vagrant s. to outer Melbourne suburbs and to the Grampians in sw. Vic." However, Pescott (1983) relates two early accounts of the species occuring locally: in 1902 at Steiglitz and an unconfirmed sighting at Apollo Bay in 1905.

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Birds at Fyans Park

Theo Trickett

I thoroughly enjoy my usual Sunday morning 20-25 minute observing at my customary spot overlooking the Barwon River.

The Clamorous Reed-warblers were back at the river in good voice on 9 September 1981; they were snapping at lacybugs on the jasmine at our back door on 14 January 1982, calling less and more quietly at the river by 24 January, and not heard after 31 January. They were back again with that lovely call on September 1982, and not heard after 30 January 1983.

Two Caspian Terns patrolled the river from 12 September 1982 onwards, and left in mid-January; they were joined by only one or two Whiskered Terns during the same months, although the latter were so numerous elsewhere along the Barwon.

Great Egret is recorded at the river's edge on 29 January 1981, and 3 April, 30 September, and 21 November 1982.

The lovely old River Red Gum at the water's edge is very popular with many birds. It has at least one nesting hole on the west side, and in Spring I've seen Eastern Rosellas, Galahs, Starlings, Common Mynahs and the Rainbow Lorikeets, all carefully inspecting the hole. Black-shouldered Kites sometimes rest in branches, and I've seen Nankeen Kestrel perched there, and on another occasion, in the topmost branches, a sour-looking Brown Falcon. Magpie-larks have nested there several years.

The flat tops of the great pylons are always worth a look; one often sees a White-faced Heron up there, preening. And one morning there was a tremendous to-do from two Willie Wagtails indignantly harassing a Brown Falcon – and when the latter could bear it no more and flew off, two Mynahs appeared and strutted about.

On Easter Day, 3 April 1983, the river was absolutely still. It was an uncanny effect to see Welcome Swallows flying very close to the water's surface – and there were perfect reflections of the wheeling birds shining on the water.

I can remember another still morning with frost on the ground, when one of those eerie mists was rising in soft columns from the river, and a huge full moon, all ethereal, was sinking behind eucalypts on the Western hill.

On 6 December 1981 I couldn't believe my ears to hear a Peaceful Dove calling but it *was* a Peaceful Dove, it flew across in front of me and landed on the path below. It was 8 a.m. and I saw it absolutely clearly! – and heard it at home later at 10.15 a.m.

Little Grassbirds give their mournful calls on the western side of the river, one or more to the left of the pylon and one to the right. How they ever ignore the joggers (and frequently their big dogs) running along on the Stan Lewis track just above them is a mystery. But still, Purple Swamphens mince along at the immediate brink of the river or peer from the reeds there – with, just occasionally, a rabbit not far from them.

On 24 April 1983, another still morning, it was a thrill to see a Great Crested Grebe on the river, turning this way and that as he preened. For a while he had that stretch of river all to himself – no Coots, no Dusky Moorhens. On 7 May there were two Great Crested.Hoary-headed Grebe are frequently there, and there were 5 young on 21 November 1982.

My small stretch of river can turn on a pageant of seven Swans, or a flotilla of Pelicans, and it is a constant source of pleasure.

I only hope someone will be on hand to rescue me if I fall into the river with excitement when I see the White Goshawk, seen twice by Gordon McCarthy, and once by Trixie Wheeler!

Mrs. T. Trickett, 37 Craigie Rd, Newtown 3220.

Book Review

Rolf R. Baldwin

Birds of the Ballarat Region

Roger Thomas and Jack Wheeler

Linton, Thomas, 1983

One who learned his birds with the aid of dear old Dr. leach and *The Useful Birds of Southern Australia,* who as a youth had viewing access to a library edition of Matthews and, very occasionally, Gould, and who as a young teacher led groups of students who knew the rising star of Cayley and found Leach old-fashioned, might be expected to think, if not to say, "not another bird book!". He does not feel thus, however, nor should he, even though he now has in his own library such splendid books as Slater's, Pizzey's, Morris's *Birds of Prey* and Brigadier Officer's fine monographs.

For this volume is something different again. In its modesty of production, which puts it within the reach of all, it is akin to those admirable *Field Guides* of Condon and thus it will fulfil a special function. Like them it will be able to go into the field with its owner and there act as a certain identifier of a new bird or as a relable adjudicator in cases of confused identity.

A feature of the book which should endear it to the beginner is the method of description used, somewhat similar to the dichotomous key beloved of botanists. Instead of having to wander through some hundreds of illustrations to find crested birds, or birds with barred breasts, or large birds, or whatever, he finds that selection done for him, so that he can go quickly from unmistakable characteristics to the finer points, step by rapid step, to arrive finally at certainty. The method may not appeal to some, who prefer to work from pictures, but to me it seems less open to mistake and to provide the lone observer, in a way, with a small panel of colleagues to call to his notice that particular curve of bill, or buff eyebrow, or peculiarity of perching. Indentification once secured, the reader is given guidance as to where he may find illustration, and general remarks on the occurence of the bird in the Ballarat district – remarks which, it must be said, will be very interesting and informative to even a seasoned ornithologist who would find the keys too simple for his requirements.

There is another great merit in this book, apart from its value as a guide. That is that, for the first time, as far as I know, it does for the varied and attractive Ballarat district what Belcher, years ago, and Pescott, in our time, have done for the Geelong district. Here Ballarat and surroundings become a region in their own right, with all their individual characteristics and peculiarities instead of just another part of Victoria where such and such may be seen. And it should be a source of pride to us, as Geelong

Field Naturalists, that this service should have been rendered by Jack Wheeler, who for so long has been a giant in both districts and Roger Thomas whom we can hail as one of our sons.

Rolf R. Baldwin, 2 Kyle Ave., Belmont 3216

Hour Count No. 45
Lake Claremont, Western Australia
Roy Wheeler

Lake Claremont, in Perth W.A., was formerly known as Butler's Swamp. It is now a permanent lake, providing a summer refuge for a wide variety of water birds, many of which breed there. It contains mud, pond weed, bulrushes and many dead paperbarks, which probably died as a result of a rise of one metre in the water level early this century, when the surrounding land was cleared. Most of the remaining vegetation is around the north-west side of the lake, where the shore is lined with paperbacks and bulrushes, and away from the lake there is a woodland of tuart, marri, and peppermint, of which there are many fine specimens. The Claremont Council has provided a picnic ground, a cycle track, and a golf course at the northern end, and is investigating the removal of bulrushes to provide more open water for the waterfowl.

The Lake is 9 kilometres south-west of Perth, the southern border is 1½ kilometres north of Freshwater Bay (Swan River Estuary) and the south-western border is close to the Claremont Railway Station.

In 1831 John Butler requested a grant of ten acres of land on the east side of the lagoon, which was 1½ miles from his house on Freshwater Bay. Records show that he made little use of the land, and he used the area without ever receiving official consent.

In 1844 it was referred to as a dense teatree and blackboy thicket. At the end of the century much of the surrounding land had been utilised and contained valuable farms and fruit growing properties. The lake depends on rainfall for its water level and has not yet been affected by dry conditions. The water level may be affected from pumping works or private underwater extraction. It covers 60 acres.

My thanks to Mrs. Lois Clark of Claremont and the Town of Claremont for supplying me with details of Lake Claremont. On 16 July 1983, Mr. Tom Delaney of Como, Perth, and myself did an hour count there.

Lake Claremont, Perth. W.A.
16 July 1983. From north-east corner overlooking most of the Lake. Fine with cool southerlies and a few light showers. From 2.30 to 3.30 p.m.

Tom Delaney and Roy Wheeler. Birds in order of sighting:
Silver Gull, 150; Mallard, 15; Coot, 62; Little Grebe, 12; Black Duck 30; Singing Honeyeater, 10; Port Lincoln Parrot, 10; Red Wattlebird, 15; Senegal (Laughing) Dove, 12; Welcome Swallow, 42; Spotted Turtle-dove, 25; Striated Pardalote, 15; Western Magpie, 20; Black-faced Cuckoo-shrike, 6; Tree Martin, 20; Black Swan, 15; Dusky Moorhen, 22; Hardhead (White-eyed) Duck, 15; Blue-billed Duck, 6; Little Grassbird, 2;

Pink-eared Duck, 10; Grey Teal, 12; Willie Wagtail, 1; White-backed Swallow, 3; Blue-winged Shoveler, 2; White-tailed Black Cockatoo, 30.

Total 26 species and 562 individuals.

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